KITIKMEOT REGION
ECONOMIC BASE
STUDY.

Prepared for the:
Dept. of Economic Development
& Tourism, Government of the
Northwest Territories

By:
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FEBRUARY 1985.

FORWARD

This study was prepared under contract to the Government of the Northwest Territories, Department of Economic Development and Tourism, during the period October 1984 to March 1985. In conducting the study, Lutra Associates Ltd. gratefully acknowledges the input of its staff and associates: Jack Ruitenbeek of H.J. Ruitenbeek Resource Consulting Ltd., Alexandra Borowiecka of Ross & Borowiecka, Annette Ruitenbeek, Sandra Auchterlonie, Bob Stephen, Lois Little and David Smith.

Further acknowledgement is accorded to the following individuals who offered invaluable assistance in providing and interpreting much need study data: Linda Standish, Statistics Canada, Ken Hnatiuk, Northern Transportation Company Ltd., and Louise Normand, Public Service Commission.

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INTRODUCTION

Regional Overview

The Kitikmeot region is one of the more isolated regions in the Northwest Territories, accessible year-round only by air. The region has proven wealth in the char fishing industry and traditional art of the predominantly Inuit population. In recent years, both the mineral wealth and the tourism potential of the region has been discovered. The recent establishment of this area as a region onto itself, rather than an extension of the Fort Smith region, has facilitated the development of infrastructure in the region and heightened regional interests in economic expansion.

The regional administrative offices of the Government of the Northwest Territories are located in Cambridge Bay, a hamlet of about 845 (1981) inhabitants on the south shore of Victoria Island. There are two unorganized communities in the region- Bay Chimo and Bathurst Inlet- that receive direct administrative support from the regional centre. There are also five hamlets in the region . Each of the hamlets has a council which provides local government and municipal services to community residents. There are no tax-based municipalities in the region. The locations of regional communities are shown in Figure 1 and a number of the key regional data are presented in Table 1.

An important economic activity in the region is renewable resource harvesting. Fishing, trapping and hunting are all important traditional activities and contribute substantially to local well-being in providing a subsistence livelihood as well as a potential export base.

The production of arts and crafts provides additional income to the people of the region. Although its remote location has been prohibitive to non-renewable resource development, some mining potential also exists and the region would benefit substantially from any industrial expansion which would arise from Beaufort Sea hydrocarbon development.

Purpose of the Study

The primary premise behind an economic base study is that future development of a region relies extensively upon the export of goods and services to outside of the region, or upon the displacement of imports with indigenously produced goods. This type of development has two pre-requisites:

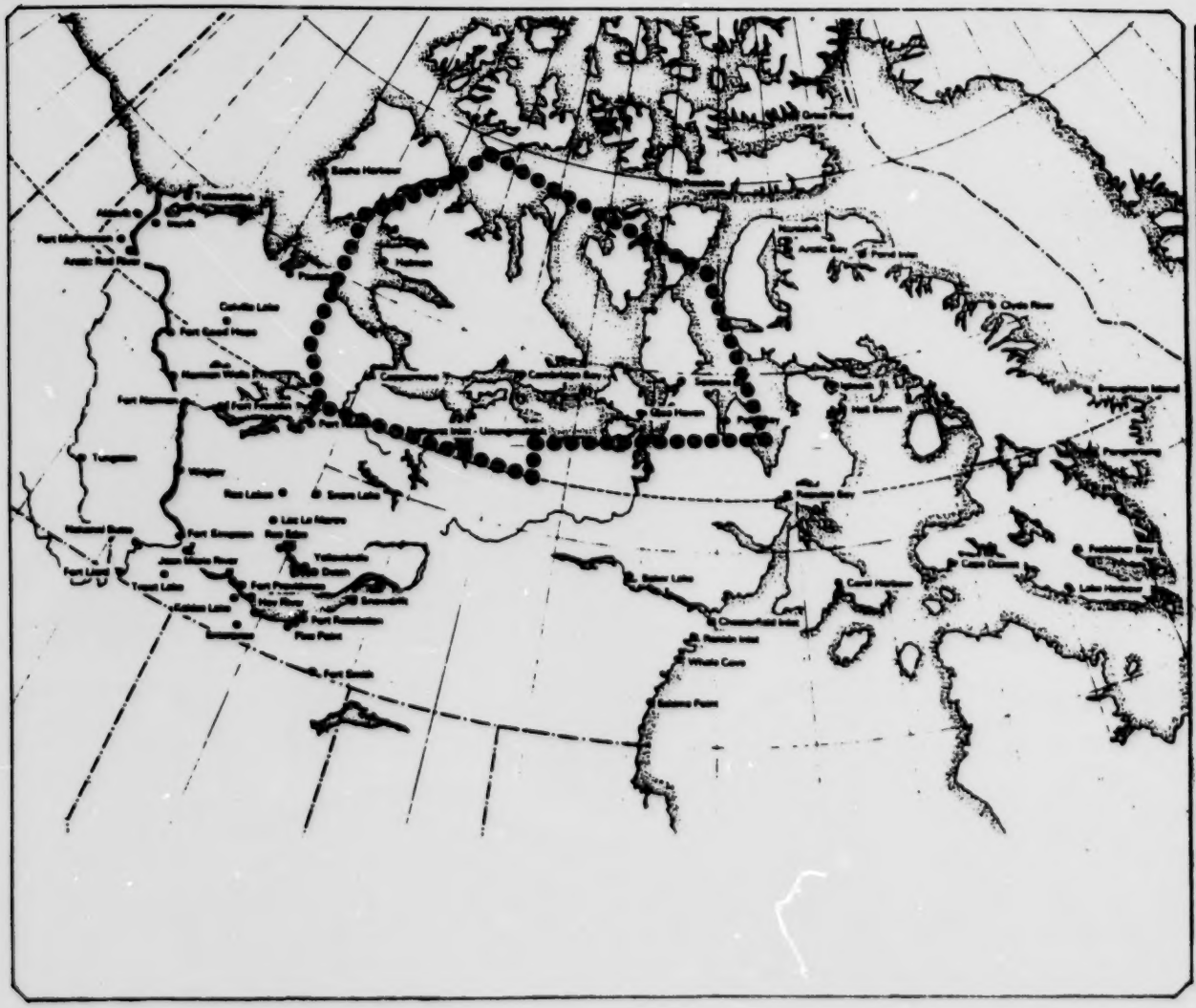
*the existence of resources which can be transformed into goods and services required outside of or within the region; and

TABLE 1
KITIKMEOT REGIONAL OVERVIEW

TOTAL AREA	536,895 km2
COMMUNITIES ADMINISTERED	Bathurst Inlet, Bay Chimo, Cambridge Bay, Coppermine, Gjoa Haven, Holman Island, Pelly Bay and Spence Bay.
POPULATION	3,245 (1981) 2,871 (1976)
RESOURCE INDUSTRY	Fishing,Trapping,Hunting
SECONDARY INDUSTRY	Tourism,Arts, Crafts
GOVERNMENT	G.N.W.T. regional administrative office in Cambridge Bay.
ANNUAL PRECIPITATION*	6.8 cm rain/ 76.8 cm snow
JULY MEAN TEMP.*	11.9 C high/ 3.9 C low
JANUARY MEAN TEMP.*	-30.2 C high/ -37.1 C low

NOTE: * at Cambridge Bay

SOURCES:1) Outcrop, N.W.T. Data Book 1984/85, 1982/83
2) Bureau of Statistics, G.N.W.T. 1981 Census



LOCATION
KITIKMEOT REGION

1

Bounds of Region

Kitikmeot Region
Economic Base
Study

Lutra Associates Ltd.
H.J. Ruitenbeek
Resource Consulting
Limited

Prepared for the
Government of the
Northwest Territories

FEBRUARY 1985

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*the existence of an infrastructure which will make it technically and commercially attractive for private or public firms to locate in the region and develop the existing resources.

A second premise behind an economic base study is that it will be used for orderly, planned development. To achieve this, the study should provide a suitable description of the current state of regional commerce. The level of regional commerce can best be compiled, for planning purposes, as the inter-regional flows of goods, services and income. Also, for orderly development to occur, planners must have a good knowledge of comparative as well as absolute circumstances. In this regard, the economic base study must provide data in a form which readily allows inter-community and inter-regional comparisons of key economic indicators. To achieve this, consistent analytical techniques must be carried through to all levels of the analysis.

The objective of this study is hence to prepare a regional economic profile consistent with current information sources which can serve as a detailed data base and reference for socio-economic planning in the Kitikmeot region.

Organization of Study

In fulfilling the above requirements for an effective data base, this study is organized into five distinct packages as follows:

-Local Infrastructure and Facilities;
-Commodity Flow Profile;
-Physical and Natural Resource Profile;
-Human Resource and Personal Income Profile;
-Business Infrastructure and Market Information.

The local infrastructure provides an inventory of public and private sector infrastructure indicating its capacity, location and nature. The inventory is disaggregated by community where relevant.

The commodity flows enumerates the flow of goods, services and dollars into and out of the region. In most cases the flows are expressed in terms of both physical quantities and monetary values. To maintain consistency with other similar regional studies, flows are presented for the 1982 year as well as the most recently available calendar year. The primary trade centres are identified as well as the modes of transportation (air,water) used for each trade link into and out of the region. In addition, the profile includes an enumeration of current tariffs for certain transportation and municipal services.

The natural resource inventory enumerates the total indigenous natural resource potential of the region in terms of mineral, energy and major biological resources. In addition, three other resources relevant to economic development are investigated: water quality, aggregate and carving stone. The inventory indicates for each resource, its location, quality, accessibility and where possible, estimates of the quantity available.

Perhaps the single most important basis for economic development is the presence of a local population with relevant skills to the tasks at hand. The earning power and consumption requirements of such a population can account for up to one-half of the demands for goods and services in any economy (the remainder arising from business and government). Appropriately, the economic base study provides a human resource and personal income profile which describes the demographic base and estimates the sources of income accruing to individuals from various forms of employment and economic endeavour.

Finally, detailed information is presented on the business infrastructure in the region, and the major sectors which harbour latent economic potential (based on current capacity and market demand) are identified.

In addition to the above, a selected bibliography is included to provide a list of some of the readily available literature which concerns the Kitikmeot region. The bibliography includes sources specifically referenced in the study as well as many which were not directly used but which are, nonetheless, potentially relevant in related work.

It should be stressed that the study is a regional base study and, as such, the material has been organized to give priority to presenting regional data for each category and then to disaggregate by community where relevant.

Using the Study

Although the emphasis of the base study is economic in nature, it can also be used as a major baseline for regional and land-use planning, environmental and social impact assessments, regional transportation analyses and assessment of social services provision. The information contained herein catalogues characteristics of each of these issues. In addition, the document provides detailed references of data sources that were identified or used in the compilation of the profile. For comparative planning purposes, the data base can be used hand-in-hand with those conducted in the Keewatin, Baffin, Inuvik and Fort Smith regions.

As with any data base which is largely statistical in nature, a number of factors can affect the reliability of the statistics which are beyond the control of the data compilation process. The user of these data must therefore be aware of the limitations and potential uses of such data. To achieve this, notes are often added to the tabular data qualifying certain types of information. In some circumstances, a section of text is devoted to describing the manner in which estimates were made and the underlying assumptions on which they were based. The user of the data should always refer to relevant text sections and take into account comments relating to the reliability and sourcing of data.

Although the data base can be used for detailed comparative and market studies, it does not replace the thorough analysis which would normally be required in conducting a feasibility assessment of any given project. The data base is meant to serve as a baseline reference to additional industry-specific research associated with such feasibility studies.

Information Sources

The Kitikmeot region has been the object of scattered study over several decades. In addition to falling under the jurisdiction of two governments- the Government of Canada and the Government of the Northwest Territories- portions of the region were intensely studied during the 1970's because of interest initiated by the Polar Gas and Mackenzie Valley Pipeline projects. In addition, its substantial wildlife resources are a constant source of international study and interest.

Although there has been expressed interest through a number of study efforts, these sources are, by their nature, often widespread and not always regionally specific. A central purpose of this data base study was therefore to compile existing information from a diversity of sources and to present it in one volume in a consistent manner. Most of the data are presented based on a thorough review of publically available sources of information. The lack of particular data may hence indicate either the lack of infrastructure or resources, or it may simply indicate that no secondary sources were available.

Primary source data were also used, when readily available, in updating information which was obviously out-of-date. A list of government departments and private firms which were contacted in preparing this study is provided in the bibliography.

One major effort at generating primary source data involved a telephone survey of in excess of 20% of the private firms in the region to determine current (December 1984) participation rates

in terms of full time, part-time and seasonal employment. This data was developed in response to a paucity of data available regarding business infrastructure and to assist in providing a more realistic basis for a private income estimate for each community. It should be noted with respect to this effort that systems are not in place within existing structures (ie. the Worker's Compensation Board of the N.W.T.) to provide up-to-date participation rates and level of business within each sector of the northern economy.

Estimates of much of the commodity flow and personal income profile were based on in-house analysis of **proprietary data which** had been provided by various firms on a confidential basis. It is important to note that, because no formal mechanism exists in the Northwest Territories to collect and guarantee the confidentiality of data collected from the private sector (such as a Statistics Act), informed estimates are the only basis for providing commodity flow data and are thus subject to change as the information sources improve. Under current conditions, firms have no legal obligations to provide commodity and income information.

In addition, it is important to note that some data which might be considered as vital to economic planning have been suppressed in this presentation to protect the interests of small population groups. Under the Statistics Canada guidelines, income data for population groups numbering less than 100 are normally not reported to guarantee anonymity of individuals within those groups. In northern communities, this often implies that no income source disaggregation can be presented as the communities themselves often have labour forces smaller than this minimum size.

As a supplement to the information sources presented in the bibliography, a number of other data are expected to arrive in the public domain shortly after the publication of this data. With respect to the Kitikmeot region, these include the G.N.W.T. 1985 Labour Force Survey, the Kitikmeot Travel Association Tourism Development and Marketing Strategy and a number of industry-specific feasibility studies which have been undertaken in the region as a result of the Economic Development Agreement (EDA). It is noteworthy that as a result of the EDA and other economic development programs, funds are now readily available to expand local business infrastructure. As such, existing businesses are expanding and new businesses are being created on almost a monthly basis. Given these incentives, it is difficult to maintain an up-to-date profile of regional/community businesses.

SECTION ONE: LOCAL INFRASTRUCTURE AND FACILITIES

Introduction

The local infrastructure and facilities inventory presents a profile of public and private sector infrastructure indicating capacity, location and characteristics. In all cases the information presented is on a community basis. Efforts have been made to present 1984 information. In cases where this has not been possible, the most recent year available has been presented and the year specified.

Housing Stock

Tables 2 to 5 display data on housing stock available in each of the communities in the region. The Northwest Territories Housing Corporation (N.W.T.H.C.) and the Government of the N.W.T. are the biggest suppliers of public subsidized housing in the Kitikmeot region. Because this region is relatively isolated, the high costs of house construction, operation and maintenance and utility costs make private home ownership generally prohibitive throughout the region.

Table 6 illustrates prevailing annual square metre rental rates paid by the dweller while Table 7 provides estimates of developable land available in each of the regional municipalities. It is worthy of note that there are no tax-based municipalities in the region therefore the issue of revenues from private lands is not prevalent in the region or community economy. Most municipalities in the N.W.T. expand their inventory of land through the acquisition of Federal/Crown lands or Commissioner's Lands. The cost and procedure associated with the acquisition of developable land in the region is directed by the G.N.W.T. Land Valuation Policy. This policy determines costs associated with the sale or lease of these lands and are as follows:

*Raw Land: unserviced and developed land that may or may not have legal access

-1 sq. m. to 1050 sq. m	@ $1000. (flat rate)
-1051 to 1350 sq. m	@ .95/sq. m
-1351 to 2300 sq. m	@ .85/sq. m
-2301 to 3300 sq. m	@ .75/sq. m
-3301 to 4100 sq. m	@ .65/sq. m
-4101 sq. m and larger	@ .50/sq. m

*Developed Land: surveyed land with legal access which has been filled or otherwise prepared for construction

-raw land value or acquisition cost if land purchased
-100% of land fill cost
-100% of survey cost
-50% of road cost

TABLE 2
OCCUPIED PRIVATE DWELLINGS BY STRUCTURE TYPE & TENURE, 1981
(owned/rented)

LOCATION	Av. # persons/ private hhld.	Total	Single Detached	Apartment 5+ storey	Semi-Detached	Rowhouse	Duplex	Apartment -5 storeys	House attached to non-residential building	Movable/ Mobile Units
Bathurst Inlet	4.00	5/5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Cambridge Bay	3.96	0/195	0/135	n/a	0/35	0/20	0/5	0/15	0/5	n/a
Coppermine	4.46	0/175	0/160	n/a	0/5	0/5	0/5	n/a	n/a	0/5
Gjoa Haven	5.65	0/90	5/90	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Holman Island	4.64	0/60	0/60	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Pelly Bay	5.79	0/45	0/30	n/a	0/15	n/a	n/a	n/a	0/5	n/a
Spence Bay	4.92	0/80	0/85	n/a	0/5	n/a	n/a	n/a	n/a	n/a

SOURCES: 1) Statistics Canada, 1981 Census

NOTES: 1) It is noted that this data has been randomly rounded by Statistics Canada, up or down to the fifth unit. This procedure does not permit accurate totalling of units from the disaggregated units. The totals, however, are developed from the raw data and are accurate within five units. This procedure randomly rounds up or down and 0 indication does not necessarily mean 0 units in that category, it may mean as many as 4 units.

owned/rented - owned by the occupant/rented by occupant

TABLE 3
NORTHWEST TERRITORIES HOUSING
CORPORATION HOUSING UNITS, 1982.

LOCATION	PUBLIC HOUSING					NORTHERN RENTALS					N.W.T.H.C Population	Av.#/ Bdr.	Tenant Average Income
	BR-1	BR-2	BR-3	BR-4	BR-4+	BR-1	BR-2	BR-3	BR-4	BR-4+			
Bathurst Inlet	—	—	—	—	—	—	—	—	—	—	—	—	—
Cambridge Bay	8	14	21	22	—	4	16	43	4	—	627	1.7	881.48
Coppermine	8	22	24	28	2	8	1	72	1	—	720	1.62	667.5[illegible]
Gjoa Haven	—	11	29	23	—	1	—	25	—	—	558	2.81	772.83
Holman Island	—	5	25	9	—	5	—	24	—	—	278	1.4	478.68
Pelly Bay	—	1	24	4	—	—	10	12	—	—	255	1.75	970.58
Spence Bay	—	3	48	18	—	—	—	22	—	—	392	1.62	1864.82

SOURCES:1) N.W.T.H.C.,1983 Needs Survey as based on 1982 data.

TABLE 4
G.N.W.T. STAFF HOUSING UNITS, 1982.
(units in meter squared)

LOCATION	TOTAL UNITS	Single Detached	Duplex	Row House	Apartment	Mobile Units	Total Usage Space	Total Other Space
Bathurst Inlet	-	-	-	-	-	-	-	-
Bay Chimo	-	-	-	-	-	-	-	-
Cambridge Bay	71	39	6	18	8	-	5942.39	258.17
Coppermine	22	19	-	-	-	3	1848.72	172.27
Gjoa Haven	15	13	-	-	2	-	1358.70	55.65
Holman Island	6	6	-	-	-	-	551.21	45.93
Pelly Bay	5	4	-	-	1	-	484.60	39.84
Spence Bay	14	14	-	-	-	-	1282.88	86.79

SOURCES: 1) Dept. of Personnel, Gov't of the N.W.T.

TABLE 5
SUMMARY OF HOUSING UNITS, 1981/82

	Statistics Canada		NWTHC	GNWT
	Owned	Rented		
Bathurst Inlet	5	5	0	0
Cambridge Bay	-	195	132	71
Coppermine	-	175	158	22
Gjoa Haven	-	98	89	15
Holman Island	-	68	68	6
Pelly Bay	-	45	51	5
Spence Bay	-	88	75	14

Sources: Tables 2,3 & 4

TABLE 6
PREVAILING ANNUAL RENTAL RATES, 1984
(per sq. m/annum)

Community	Single Detached			Apartment		Office	Warehouse
	G.N.W.T.	NWTHC	Private	G.N.W.T.	Private		
Cambridge Bay	$31.60	$11.00	-	$27.72	-	$386.38U	$196.45U
Copperaine	$31.60	$11.00	-	-	-	-	-
Gjoa Haven	$31.60	$9.00	-	$27.72	-	-	-
Holman Island	$31.60	$6.00	-	-	-	-	-
Pelly Bay	$31.60	$11.00	-	$27.72	-	-	-
Spence Bay	$31.60	$14.00	-	-	-	-	-

Notes: Fred H. Ross has the only available warehouse space for rent in Cambridge Bay.
As per Economic Dev. the only available office space for rent is owned by the Co-op.
G.N.W.T. rates refer to usable space only; other space = 3.58 per sq.m
G.N.W.T. Single Detached Homes - utilities not included.
G.N.W.T. Apartments - utilities are included.
N.W.T. Housing Corporation is in the pro cess of introducing a scheme by which the occupant will be required to pay utilities in some communities.
U= Utilities are included.

Sources: 1) Gov't of the N.W.T.
2) N.W.T. Housing Corporation
3) Telephone Survey conducted by Lutra Assoc. Ltd.

Development Costs:

Vacant Parcels: addition of the following factors

-raw land value
-100% of estimated land fill
-survey cost @ $250.

The Northwest Territories Housing Corporation is responsible for the operation and maintenance of its public rental units in all Kitikmeot region communities except Bathurst Inlet/Bay Chimo where no N.W.T.H.C. exist. The Corporation was incorporated in 1974 and administers its housing program through a Territorial wide Board of Directors and local Housing Associations. Corporation board members are appointed by the Legislative Assembly. Local associations are located in each community where Corporation houses exist.

The Corporation offers a northern rental program and a public housing program. As well, it offers the homeownership assistance program (H.A.P.) and the rural and remote mortgage assistance program (RRAP) to individuals capable of operating and maintaining their own home. A rental program is delivered by the Corporation to those families unable to afford to own and operate their own home.

The home ownership assistance program provides assistance to purchase materials and site preparation. The client must provide all labour, equipment and those materials not covered under the assistance program. Labour funds may be acquired through other funding sources. The rural and remote program is offered in partnership with the Canada Mortgage and Housing Corporation (CMHC), assisting clients by subsidizing mortgage payments to 25% of adjusted family income. The northern rental program is an ownership program offered to people who live in northern rentals. This is a rent to purchase program whereby a portion of the rent is applied to the purchase of the unit. Rental units constructed before 1974 on land available for sale or lease are eligible for purchase under this program.

Other programs offered by the Corporation include: the provision of public housing rental units; rehabilitation of Corporation units to bring the unit and equipment up to standards; and an emergency repair program to extend the life of northern rental units.

Gov't of the N.W.T. housing units exist in every community where G.N.W.T. administrative services are provided. There are no Federal Government housing units in the region. Federal government employees in the region reside in units rented from and maintained by the Gov't of the N.W.T.

TABLE 7
ESTIMATES OF DEVELOPABLE LAND IN KITIKMEOT REGION COMMUNITIES, 1984

Location	Residential Lots	Commercial Lots	Industrial Lots	Comments/ Constraints
Bay Chimo	as required	as required	as required	Plenty of space if need arises
Bathurst Inlet	as required	as required	as required	Plenty of space if need arises
Cambridge Bay	approx. 20 avail.	Actual-nil Potential-2	Actual-nil	Residential lots are part of NWTHC land assembly program. Space is usually found as demand dictates.Land development is costly.
Coppermine	approx.42	4	3	2 commercial lots need $20,000 each in fill;another 2 are presently owned by the community.One industrial lot owned by MOT;antennae need to be removed. Another 2 industrial lots are privately owned. The school has 7 acres which may be developed.
Gjoa Haven	nil	3	1	2 commercial lots will probably be used for residential space.A third site is the old hamlet office and will be demolished. The ravine is a constraint to development.
Holman Island	as required	as required	as required	Excellent drainage and land conditions.
Pelly Bay	as required	as required	as required	No complete survey done or community plan. Little demand for land.Airport location is a development constraint.
Spence Bay	8	nil	nil	Residential lots are land assembly lots. These lots require fill.Land development costs are high due to rocky ground.HBC and new motel require land.The HBC is currently located on the water lake.

SOURCES: Dept. of Local Government, G.N.W.T. Cambridge Bay and Yellowknife

Estimates of **developable land** available in the region were difficult to access as complete inventories and/or community plans have not been completed for each of the communities. As such, conservative projections have been offered by both the G.N.W.T. Dept. of Local Government and/or the municipalities themselves.

Land assembly programs are undertaken in most non-tax based municipalities in every region of the N.W.T. Land is "assembled" in blocks, surveyed for lots and made available for development. This two year development of residential lots is undertaken largely by the Dept. of Public Works in conjunction with the Dept. of Local Government.

Municipal Infrastructure and Services

Electricity

Table 8 provides a profile of electrical power characteristics in the region. Power in the Kitikmeot region is generated by the Northern Canada Power Commission (N.C.P.C.) which is a Federal crown corporation. All power in the region is generated by diesel fuel.

Fuel Supply

Fuel availability and storage capacities are documented in Tables 9 and 10 while pricing for these commodities is displayed under the commodity profile, Table 49.

Water Services and Sewage Disposal

The Government of the Northwest Territories is responsible for installing basic municipal services in the communities of this study area. The publication entitled "Community Water and Sanitation Services," pages xiii and ix, published by GNWT, 1981, indicates that:

"In general, the priorities of the Water and Sanitation Program for the smaller Northwest Territories communities have been to firstly improve their ability to distribute sufficient quantities of potable water and to collect and haul away the sewage and garbage. The second priority has been to ensure each community has a sufficient water supply that satisfies all of the bacteriological, chemical, and aesthetic standards set out in the Guidelines for Canadian drinking water quality, as well as to provide an all season water intake to ensure a safe and ready supply. The upgrading of solid waste facilities and sewage treatment and

TABLE 8
ELECTRIC POWER FACILITIES

	Installed Capacity kW	Installed Capacity x10 3 L	Type of Installation	Estimated Vol.Fuel Used /annum,x10 3L*	Peak Load 82	Peak Load 83	Fuel Type
Bathurst Inlet	n/a						
Bay Chimo	n/a						
Cambridge Bay	2725	2541	diesel	1232	1010	960	Marine
Coppermine	1575	955	diesel	700	500	620	Marine
Gjoa Haven	1160	511	diesel	427	350	400	P40
Holman	850	0**	diesel	326	267	2265	P50
Pelly Bay	800	0**	diesel	268	220	225	P50
Spence Bay	900	852	diesel	549	450	450	P50

SOURCE: Northern Canada Power Commission, Edmonton

NOTE: * Fuel use is estimated for 1982, based on 39% load factor and 26% fuel efficiency.

TABLE 9
FUEL SOURCES

	MODE	ORIGIN
Bathurst Inlet	Barge	Norman Wells
Bay Chimo	Barge	Norman Wells
Cambridge Bay	Barge	Norman Wells/Hay River
Coppermine	Barge	Norman Wells/Hay River
Gjoa Haven	Barge	Norman Wells
Holman Island	Barge	Norman Wells/Hay River
Pelly Bay	Air	Resolute
Spence Bay	Barge	Norman Wells

Notes: Hay River is not an origin, it is a transfer point for fuel from Alberta.
This table represents fuel originating from outside the Kitikmeot Region.

Sources: 1) See Table 35

TABLE 10
FUEL CAPACITY, USAGE AND RESUPPLY
(litres)

	Capacity	81/82 Usage	83/84 Usage	84 Resupply*
Cambridge Bay**				
P-50	2,500,000	2,500,300	n/a	2,500,300
Gasoline	600,000	454,600		454,600
Avgas100-130	100,000	681,900		681,900
Turbo B	100,000	454,600		454,600
Coppermine				
P-50	4,867,502	1,591,948	1,300,324	1,475,938
Gasoline	1,577,129	424,259	442,798	468,875
TurboB	497,569	178,559	233,054	257,115
Avgas100/130	516,093	n/a	314,597	320,172
Gjoa Haven				
P-50 GNWT	2,440,144	1,186,860	1,894,014	1,787,686
P-50 NCPC	387,464	560,000	(inc.NCPC)***	
Gasoline	1,183,787	224,818	258,767	282,474
Holman Island				
P-50	2,307,026	1,077,037	920,894	1,214,400
Gasoline	465,983	186,374	189,813	345,860
TurboB	313,785	0	162,482	113,364
Pelly Bay				
P-50	1,360,700	895,535	863,360	923,070
Gasoline	461,491	100,710	141,641	200,215
Spence Bay				
P-50 GNWT	2,020,264	1,192,353	1,166,867	797,114
P-50 NCPC	720,534	570,004	609,509	465,327
Gasoline	450,824	251,370	233,555	194,076

SOURCES: (1) GNWT Petroleum Products Division
(2) Fred H. Ross and Associates, Yellowknife

NOTES: * 1984 Resupply Quantity is amount brought in, not total amount of fuel in community.
**Bulk storage capacity.
***N.C.P.C.'s consumption is included in the G.N.W.T. total as stated above.

TABLE 11
COMMUNITY WATER SOURCES & QUALITY

	Bathurst Inlet	Cambridge Bay	Copper-mine	Gjoa Havan	Holman Island*	Pelly Bay*	Spence Bay*
Source:	Burnside River	Lake	Coppermine River	Lake	RCAF Lake/ Uhpillih R.	2Lakes/ Stream	Lake
Location:	-	2km.N	915m	1.7km.N	2.1km.NE/ 2km	2.8km/ 2.7kmS	NE
Quality Parameter:**							
pH	-	6.2	7.65	7.6	7.72/8.01	7.2/7.6	6.8
Turbidity (U)	-	10	<1	-	1/1	2.5/3.0	8.6
Dissolved Solids	-	-	90	-	73/148	-	-
Suspended Solids	-	-	17	-	2/2	-	5
Alakalinity	-	4	23	117	23/49	7/73	86
Hardness	-	4	45	146	39/95	11/43	79
Sulphate	-	1	2.5	3.3	-	3.2/11	-
Chloride	-	4	-	9.6	-	-	-
Fluoride	-	0.09	-	-	-	-	0.1
Cadmium	-	-	-	-	-	-	0.011
Nitrates	-	<0.1	-	0.13	-	-	0.022
Phosphates	-	-	-	-	-	-	<0.05
Iron	-	0.9	0.8	0.16	0.05/0.05	-	1.96
Sodium	-	-	-	-	-	1/2	-
Calcium	-	-	8.2	30.5	9/20	3.3/13.4	-
Mercury (ug/l)	-	-	-	-	-	-	<0.02
Colour (U)	-	25	10	5	8/8	10/5	-

Notes: *Data presented are for winter/summer
**Mg/litre unless otherwise noted

Sources: 1) N&T Data Book 84/85
2) GN&T, Local Government, Community Water and Sanitation Study 1981
2) GN&T, Local Government, Technical Services Report for Kitikmeot, Inuvik and Ft. Smith Regions,1982

TABLE 12
WATER INTAKE

	Intake Facilities	Storage Facilities	Pumphouse and Treatment System
Bathurst Inlet	Obtained manually: summer: water; winter: ice.	not applicable	untreated
Cambridge Bay	Surface water intake screen, 81m long 100mm pipe. Rests within casing 4m below surface. Submersible pump at intake.	179m3 tank beside pumphouse	Booster pumps in intake pumphouse; fire pump, truck fill pump and circulartory pumps in the distribution pumphouse. Hypochlorination and mixing at distribution pumphouse.
Coppermine	Screen 0.6m above river bottom, 7.5m from shore. 255mm dia. pipe from riverbed to pumphouse. 2 submersible pumps discharge water to pumphouse.	409,150L in reservoir building 400m from pumphouse.	Chlorinated at central pump.
Gjoa Haven	37m long, 250mm dia., insulated and heat traced 9m below surface, extends 30m into lake, screened.	11,365L tank; lake summer:46million L winter:25million L	2 HP submersible intake pumps; 2 HP in-line truckfill pumps; hypochlorination in water storage building.
Holman Island	Pump on water truck; suction.	not applicable	Untreated. Pump on water truck
Pelly Bay	Pump on water truck.	not applicable	Batch chlorinated in tank truck
Spence Bay	Wetwell and pumphouse extend out onto lake; screened intake.	45,460L tank in truck fill building.	Pump in intake pumphouse brings water to storage tanks, 2 transfer pumps in storage tank for truck fill; chlorination at truck.

SOURCES: 1) NWT Data Book 84/85
2) GNWT, Local Government, Community Water and Sanitation Study, 1981
3) GNWT, Local Government, Technical Services Report for Kitikmeot region, 1982

TABLE 13
WATER DISTRIBUTION

Community	Piped System	Trucked System	System Capacity	Capacity, Household Tanks
Bathurst Inlet	not applicable	not applicable	not applicable	not applicable
Cambridge Bay	Piping in the pumphouse building only.	Three trucks 6 x /week Service by local council.	5683L 6819L	Range from 455L to 2273L in residences. School, hostels, nursing station range from 4320L to 45,500L.
Coppermine	8.3m square metal utilidor buried in raised gravel pad; 100mm dia. insulated pipe; serves laundry and washhouse, nursing station, school, and 2 residences.	2 tank trucks 2-3 x /week Service provided by Hamlet.	4090L 4550L	Residences - 1135L. Transport Cda trailers - 9090L. School - 45,460L. Nursing station = 6820L
Gjoa Haven	not applicable	Delivery truck Contract: local council	4546L	not available
Holman Island	not applicable	Pump truck. Private contract.	5450L	not available
Pelly Bay	not applicable	Tank truck Contract: hamlet	4550L	1135L (new) 205L (old)
Spence Bay	Unchlorinated water directly to nursing station from intake well utilidor.	Delivery truck Contract: hamlet	2270L	not available

SOURCES: 1) NWT Data Book 84/85
2) GNWT, Local Government, Community Water and Sanitation Study, 1981
3) GNWT, Local Government, Technical Services Reports for Kitikmeot, Inuvik, and Fort Smith regions, 1982

TABLE 14
SOLID WASTE COLLECTION AND DISPOSAL

	Collection and Disposal
Bathurst Inlet	Garbage is managed individually.
Cambridge Bay	Collection in 205L drums outside homes; picked up 3-5 x /week; dumped at Garbage Lake 1.7km east. Council collects garbage.
Coppermine	Collection in 205L drums; pickup 3 x /week; dumped 2.2km away, between airstrip and Coronation Gulf. Service by Council.
Gjoa Haven	Collected 3 x /week by council; dumped 1.5km north. Dry garbage is burned by householders.
Holman Island	Collected 1 x /week; dump north of airport road. Locally contracted.
Pelly Bay	Combustibles burned in front of homes; other wastes hauled to dump (2km) 3 x /week. Service by Hamlet.
Spence Bay	Weekly collection by hamlet; dump 1.5km NW.

SOURCES: 1) NWT Data Book 84/85
2) GNWT, Local Government, Community Water and Sanitation Study. 1981
3) GNWT, Local Government, Technical Services Reports for Kitikmeot, Inuvik, and Fort Smith regions, 1982

TABLE 15
SEWAGE COLLECTION AND DISPOSAL

Community	Storage and Pumpout	Pickup Frequency	Disposal
Bathurst Inlet	Managed individually.	n/a	Bagged sewage from the lodge is taken 1km away and put in sandpit.
Cambridge Bay	Tanks in most dwellings. Some have pressure. Some bagged. Pumpout available 6 days/week	Bagged sewage 3-4 x/week Bagged sewage. Pumpout contracted to Council.	Two 5455L sewage tanker trucks to Garbage Lake 1.7km east.
Coppermine	Gov't staff and institutional buildings have tanks, pumpout 3 x /week. School and nursing station have tanks; 45,460L and 6820L respectively; school pumpout 5 x/week. Remainder is bagged.	Daily collection for bagged sewage. Council has contract for bagged and pumpout sewage.	Truck 4550L capacity; NCPC serves its own residences. Dump 2.2km away, between airstrip and Coronation Gulf.
Gjoa Haven	Bagged sewage Pumpout service available	3 x /week. Contracted to council.	Trucked 1.5km north; liquid sewage pumped onto a pond at disposal site
Holman Island	25% have tanks. Remainder bagged.	3 x /week. Private contract.	Dump north of airport road in pits dug for liquid, bagged, and solid waste.
Pelly Bay	Some tanks with pumpout; most bagged.	3 x /week. Hamlet provides service.	2km from hamlet
Spence Bay	Some tanks with pumpout; most bagged.	3 x/week by Hamlet.	1.5km NW of settlement; trucked.

SOURCES: 1) NWT Data Book 84/85
2) GNWT, Local Government, Community Water and Sanitation Study 1981
3) GNWT, Local Government, Technical Services Report for Kitikmeot, Inuvik, and Ft. Smith regions, 1982

disposal facilities normally follow in order of priority."

Water sources,facility and distribution is illustrated in Tables 11,12 and 13. Sewage and solid waste disposal systems are detailed in Table 14 and 15. The authority for the provision of municipal services is given to local governments under the Municipal Ordinance of the N.W.T. Specific rates for these services are established by municipal councils in accordance with established local by-laws, which also include the rates to be levied for these services. These services are delivered by local Councils themselves or by a local contractor. In most cases, services are provided at the 'economic' rate which means delivering the services at cost. It is however, at the discretion of local governments to set the rate for these services.

Assets of Incorporated Municipalities

Table 16 describes those capital assets (buildings and equipment) owned by incorporated municipalities in the region. It is noted that all equipment owned by municipalities are 'first life' pieces. The average life expectancy of municipal equipment is 5-8 years.

Transportation Services

Tables 17 to 20 describe various components of the transportation services available in the region. The Kitikmeot region is served year-round by air only and in the summer by water. It is suggested that reference be made to the commodity flow profile to ensure a more complete understanding of this system.

Air Facilities

Table 17 and 18 and Figure 2 describe airport facilities and scheduled air services.

The communities in the Kitikmeot region are all served by air on a regular scheduled basis or via charter services. Airports are maintained in some cases by the municipality and in others by Transport Canada or the G.N.W.T. A joint Canada/N.W.T. agreement ensures that airports and aviation services are continuously improved or upgraded. Training of airport staff is also a high priority and is part of this joint agreement. The basic aim of this facet of the agreement is to ultimately ensure that local people have the skills to operate community airports.

Roads

Beyond municipal roads and local roads to nearby gravel pits or

TABLE 16
ASSETS OF INCORPORATED MUNICIPALITIES
(Funded Buildings & Equipment Only)

LOCATION	BUILDINGS	UNIT SIZE (sq./ft)	EQUIPMENT	YEAR	UNIT WEIGHT*	OTHER COMMENTS
Cambridge Bay	2) Staff Houses	1,047 each	Sewage Truck	1978	9,500	Non-funded buildings include:
	Parking Garage	2,286	Sewage Truck	1983	9,500	part of municipal garage,old settle-
	Fire Hall	1,023	2)Water Trucks	1979	9,500	ment office, bathhouse,day care
	Municipal Garage	1,439	Water Truck	1983	9,500	centre community hall. Non-funded
			Fire Truck	1981	13,600	equipment inludes a 1977 sewage
			1/2 Ton Truck	1978	4,000	truck.
Coppermine	Staff House	1,792	Fire Truck	1980	13,600	Unfunded equipment also includes
	2)Staff House	1,040	Crew Cab	1975	4,400	a 1978 water truck.
	Maintenance Garage		Garbage Truck	1977	6,400	
		1,769	2)Dump Truck	1977/79	10,000	
	Parking Garage	1,200	Sewage Truck	1979	9,500	
	Fire Hall	1,023	Loader Case	1978	15,000	
	Council Office	933	Caterpillar	1977	39,000	
	Freezer	396	2)Water Trucks	1982/83	9,500	
	Parking Garage	2,000	Sewage Truck	1982	9,500	
			Grader	1978	28,000	
Gjoa Haven	Staff House	1.020	Caterpillar D6	1973	39,000	Unfunded equipment: 1973 tracked
	Staff House	1.100	2)Dump Truck	1983/79	10,000	loader (255,000 lb.), 1975 dump truck
	Trade Shop	2,304	Fire Truck	1979	13,600	(10,000),club wagon, 1982.
	Fire Hall	1,542	Loader	1975	15,000	
	3 Bay Garage	2,200	Grader	1979	28,000	
	3 Bay Garage	2,200	Garbage Truck	1978	6,400	
			2)Sewage Trucks	1982/83	9,500	
			2)Water Trucks	1980/76	9,500	
			Crew Cab	1980	9,500	
Holman Island	Staff House	1,055	Grader	1977	28,000	Non-funded building
	Staff House	1,000	D-6 Buldozer	1978	39,000	
	Hamlet Offfice	768	Front-End Loader	1979	15,000	Generator Building
	3 Bay Garage	1,678	Dump Truck	1979	10,000	240 sq. feet
	Parking Garage	1,692	Stake Truck	1979	6,400	Community Hall
	Parking Garage	1,818	Water Truck	1978	9,500	2000 sq. feet
	Freezer Unit	800	Sewage Truck	1979	9,500	Non-funded Equipment
			Half-T-Truck	1983	4,000	Farm Tractor '73
			Fire Truck	1969	13,600	Farm Wagon '73
						Stake Wagon '75
						Sewage Tractor '75
						Water Tractor '75
Pelly Bay	4 Bay Garage	3,600	Fire Truck	1980	13,600	Non-funded Equipment
	3 Bay Fire Hall	3,900	Dump Truck	1980	10,000	57 Grader 1957
	Office Complex	5,822	Water Truck	1980	9,500	75 Dodgge-Dump 1975
			Bulldozer D6	1977	39,000	75 International Truck 1975
			Grader	1979	28,000	
			Sewage Truck	1977	9,500	
			Super Cab Pick-up	1979	4,400	
			Stake Truck	1979	6,400	
			75 Case Loader	1975	15,000	

..con'd.

TABLE 16, continued
ASSETS OF INCORPORATED MUNICIPALITIES
(Funded Buildings & Equipment Only)

LOCATION	BUILDINGS	UNIT SIZE (sq./ft)	EQUIPMENT	YEAR	UNIT WEIGHT*	OTHER COMMENTS
Spence Bay	Staff House	1,792	2) Water Truck	1977/80	9,500ea	Non-funded Building
	Staff House	936	2) Sewage Truck	1978/82	9,500ea	Hamlet Building
	Staff House	1,046	Crew Cab	1979	4,400	Community Hall
	3 Bay Garage	2,288	Garbage Truck	1977	6,400	Building Maintenance &
	Maintenance Garage	1,389	D6 Caterpillar	1977	39,000	Storage Building.Non-funded
	Hamlet Office	3,010	Case Loader	1979	15,000	Equipment: Pick-up '75 -
	Maintenance Garage	2,000	Grader	1977	28,000	4,000, Dump-truck '77 -
			Fire Truck	1981	13,600	8,000.
			Dump Truck	1982	10,000	
			4x2 Cab+Chassie	—	10,000	

Notes: Weight in lbs. (empty weight)

Source: Dept. of Local Government, Cambridge Bay

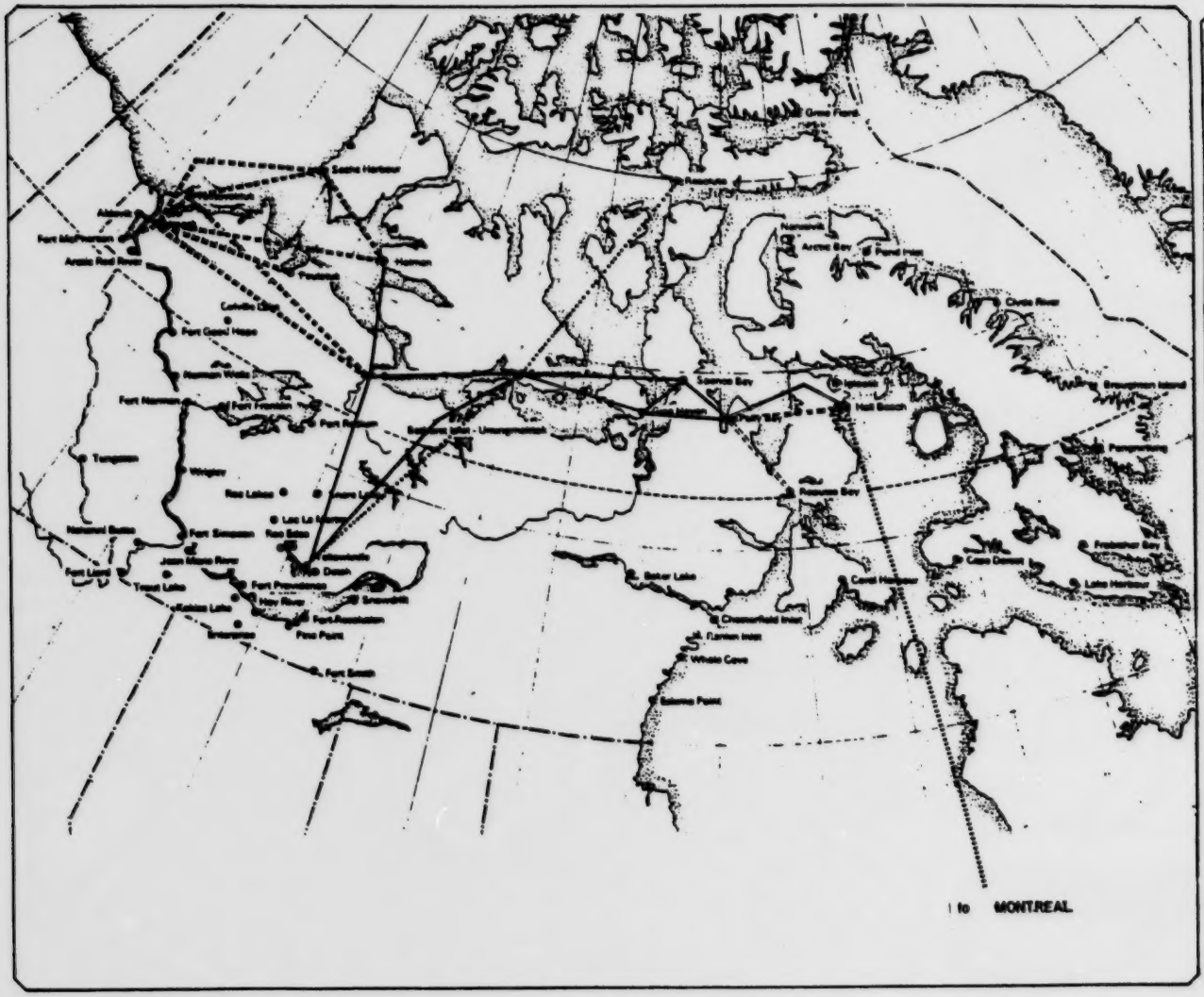
TABLE 17
AIRPORT FACILITIES, 1984.

Location	Operator	Type	Length (m)	Width (m)	Fuel Avail.	Term. Bldg.	Nav. Aids	Seaplane Facilities	Other Services
Bathurst Inlet	Private	Gravel	1866	23	N	N	-	Y*	-
Bay Chimo	-	-	-	-	-	-	-	N	-
Cambridge Bay	T/Canada	Gravel	1524	46	Y	Y	NDB,VOR/DME	Y**	FSS(W/C/FP), SAM, APP, CF&R, FV
Coppermine	H.Council	Gravel	1524	30	Y	Y	NDB	Y**	FSS(C/W/FP/),SAM, FV
Gjoa Haven	H.Council	Gravel	1311	30	Y	Y	NDB	Y**	CARS(W/C) SAM
Holman Island	H.Council	Gravel	1448	30	N	N	NDB	Y**	CARS (W/C), SAM
Pelly Bay	H.Council	Gravel	1100	30	N	Y	NDB	N	CARS(W/C), SAM
Spence Bay	H.Council	Gravel	1097	30.5	N	Y	NDB	N	CARS(W/C), SAM

Sources:1) Outcrop, N.W.T. Data Book, 1984/85

NOTES: OTHER SERVICES
AP=aircraft parking APP=aircraft parking plugs C=communications
CARS=community airport radio station CF&R=crash,fire fighting and rescue
FSS=flight service station FP=flight planning
FV=food concession or vending machines
LAM=limited airfield maintenance PAS=private advisory station
PF=public facilities SAM=scheduled airfield maintenance
W=weather

Y-yes Y*=licenced private float plane access
Y**=unlicenced float plane access N=no



SCHEDULED AIR SERVICE 2

PACIFIC WESTERN AIRLINES
NWT AIR
KENN BOREK AIR
AUSTIN AIRWAYS
NORDAIR

* SEE TABLE 18.

Kitikmeot Region Economic Base Study

Lutra Associates Ltd.
H.J. Ruitenbeek Resource Consulting Limited

Prepared for the Government of the Northwest Territories

FEBRUARY 1985

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TABLE 18
SCHEDULED AIR SERVICES

Origin / Destination	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Bathurst Inlet													
2. Cambridge Bay			3	1345	23	13	1345	13456		3			
3. Coppermine		2		2	24		2	1345		2	24	124	
4. Gjoa Haven		1345	14		1	13	135	145		3			
5. Holman		2	24	2		2	2	24		2		3	3
6. Pelly Bay		13		13	1		3	13		3			
7. Spence Bay		1345		134	1	13		145		3			
8. Yellowknife +		12356	12345	135	24	13	135						
9. Resolute		36											
10. Hall Beach ++		3		3		3	3						
11. Tuktoyaktuk			24										
12. Inuvik			24		3								
13. Sachs Harbour					3								

NOTES: + Access to most points south.
++ Access to the Keewatin region.

Flights recorded include direct flights and those having stopovers.

1 = Monday, 2 = Tuesday, 3 = Wednesday, 4 = Thursday, 5 = Friday, 6 = Saturday, 7 = Sunday.

SOURCES: Pacific Western, October 1984
Northwest Territorial Airways, June 1984
Kenn Borek Air, June 1984

recreation areas, there are no all weather or winter road systems in the Kitikmeot region. Local road systems are gravel surfaced and are maintained by community governments.

Table 19 enumerates registered vehicles available in local municipalities. Table 20 provides information on passenger and freight rates prevailing in the region.

Water Based Transportation

The water based transportation network serving the Kitikmeot region originates in Hay River. As the major western N.W.T. transportation centre, goods are shipped to this centre via the Mackenzie Highway for transfer to north bound barges.

The Northern Transportation Company Limited (N.T.C.L.) provides all barge resupply in the region. The barge season runs from late June to late August in this region. Because of travel time involved to the Kitikmeot region and the duration of the ice free season, most communities receive only one resupply barge per year. It is noted that Pelly Bay and Bathurst Inlet/Bay Chimo do not receive barge resupply services. In these communities all resupply is by air. Some of the more important products barged from the south include fuel for the Northern Canada Power Commission, food staples and consumer goods.

Docking facilities are generally available in the larger communities in the region. A system of relays on smaller vessels is used to off load barges in communities where docking facilities are not available.

Communication Services

Communication systems are an important service in all regions of the N.W.T. With the advent of satellite communications and improved transportation systems, print media, radio, television and telephone services are now available to most regional residents. A summary of communication services is presented in Table 21.

Print media is available to all regional residents from those centres which produce northern newspapers, specifically Inuvik, Yellowknife, Hay River and Fort Smith. Many of the small communities produce a newsletter for local residents. Distribution of print media and reliability of postal services are contingent on the regularity of transporation systems.

TABLE 19
REGISTERED VEHICLES, 1984.

Registered Vehicles	Cambridge Bay	Coppermine	Holman Is.	Gjoa Haven	Pelly Bay	Spence Bay
Passenger Cars	24	-	2	1	1	4
Station Wagons	-	-	1	-	-	-
Motorcycles	12	3	-	-	-	5
Taxi Cabs	-	-	-	-	-	-
School Bus	-	-	-	1	-	-
Truck	107	35	9	8	2	24
Truck Tractor	-	2	-	5	-	1
Truck Trailer	-	1	-	-	-	-
Fire Truck	1	1	1	1	-	-
Road Construction	17	4	3	1	-	3
Utility Trailer	2	2	-	-	-	1
TOTAL	163	48	16	17	3	38

NOTE: Residents of communities not included here register their vehicles at the nearest centre with these services.

SOURCE: Motor Vehicles Registrar, GNWT Dept. of Government Services, Registered Vehicles to October, 1984.

TABLE 20
PASSENGER AND FREIGHT RATES

Origin	Destination	Carrier	Passenger Fare	Regular Freight $/Kg	Priority Freight $/Kg
Cambridge Bay	Yellowknife	PWA	$168	2.09	2.09
	Edmonton	PWA	$362		
Coppermine	Yellowknife	NWTAir	$224	2.09	2.33
	Edmonton	PWA,NWTAir	$418		
Gjoa Haven	Yellowknife	NWTAir	$455	4.61	4.61
	Edmonton	PWA,NWTAir	$649		
	Winnipeg	NWTAir	$764	6.45	6.45
Holman Island	Yellowknife	NWTAir	$398	2.93	3.71
	Edmonton	PWA,NWTAir	$598		
	Winnipeg	NWTAir	$787	4.77	4.77
Pelly Bay	Yellowknife	NWTAir	$647	5.67	5.67
	Edmonton	PWA,NWTAir	$841		
	Winnipeg	NWTAir	$956	7.51	7.51
Spence Bay	Yellowknife	NWTAir	$558	5.82	5.82
	Edmonton	PWA,NWTAir	$752		

Sources: 1) Northwest Territorial Airways, Yellowknife
2) Pacific Western Airlines, Yellowknife

TABLE 21
SUMMARY OF AVAILABILITY OF COMMUNICATION SERVICES, 1984

LOCATION	POSTAL		NEWSPAPER		TELEPHONE					AERADIO
	Code	Delivery/wk.	Local	Other	Local	Res.	Bus.	DD	# Circuits	(VHF)
Bathurst Inlet	XBEBCB	Irregular	N	N	Mobile			N		Y
Cambridge Bay	X0E0C0	2/wk.	N	Y	Y	138	138	Y/M*	448	N
Coppermine	X0E0E0	4/wk.	N	Y	Y	72	46	Y/M	168	N
Gjoa Haven	X0EIJ0	5/wk.	N	Y	Y	39	31	Y/M*	104	N
Holman Island	X0E0S0	2/wk.	N	Y	Y	36	24	Y/A	100	N
Pelly Bay	X0EIK0	2/wk.	N	Y	Y	35	27	Y/M	80	N
Spence Bay	X0EIB0	5/wk.	N	Y	Y	53	34	Y/A	120	N

SOURCE: 1)Outcrop, N.W.T. Data Book, 1984/85
2)Northwestel

NOTES: Y=yes N=no M=Microwave A=Anik Bus.= Business Res.= Residential
* refers to access to DEW line circuits.

TABLE 22
SUMMARY OF FACILITIES AVAILABLE FOR BROADCAST (RADIO/TV)

LOCATION	T.V. Call Sign(s)	T.V. Service	Radio Call Sign(s)	Radio Service	Equipment Supplier	Facilities	Licence Holder	Community Radio
Bathurst Inlet	-	-	-	-	-	-	-	-
Cambridge Bay	CBENT	Y	CBIN-FM	Y	CBC	R.D./Transmitter	CBC	N
Coppermine	CBEO	Y	CBIO	Y	CBC	R.D./Transmitter	CBC	Y/active
Gjoa Haven	CBERT	Y	CBIA	Y	CBC	R.D./Transmitter	CBC	N
Holman Island	-	Y	-	Y	G.N.W.T.	R.D./Transmitter	Broadcast Soc.	Y/active
Pelly Bay	-	Y	-	Y	G.N.W.T.	R.D./Transmitter	Broadcast Soc.	Y/active
Spence Bay	CBEQT	Y	CBIQ	Y	CBC	R.D./Transmitter	CBC	Y/active

SOURCE: Dept. of Information, G.N.W.T.
Outcrop, N.W.T. Data Book, 1984/85
CBC Northern Service

NOTES: RD= Receiving Dish LPRT=Low Power Relay Transmitter
A private cable company was established in Cambridge Bay in 1983 to serve that community.

Telex and local and long distance telephone services are available to most communities in the region via Northwestel, a subsidiary of Canadian National Rail. Mobile telephone service is still found in Bathurst Inlet. All telephone and telex services are upgraded as needed or requested.

With the exception of Bathurst Inlet, all regional communities have access to CBC Northern Service radio and television. Many local communities also have developed local radio broadcast societies which broadcast via CBC or G.N.W.T. owned equipment. Cambridge Bay also has a private cable company. A summary of facilities available for broadcast are documented in Table 22.

Education Services and Facilities

Table 23 illustrates primary, secondary and continuing education facilities available within the region.

Education facilities and programs are primarily the responsibility of the Dept. of Education, G.N.W.T. Some continuing education programs are however sponsored by the Canada Employment and Immigration Commission by purchasing spaces in those courses offered by the Dept. of Education.

The G.N.W.T. operates at least one education facility in every major community in the Kitikmeot Region. As a Territorial secondary school, Sir John Franklin in Yellowknife and the accompanying student hostel provide secondary school education facilities for Fort Smith, Kitikmeot and some Keewatin Region students.

Thebacha College in Fort Smith offers regional residents a range of programs varying from a few months to three years in duration. Program offerings include trades and technology, applied sciences, diploma programs and extension programs. Course offerings at Thebacha include business administration; teacher training; renewable resource management; trades' certification; and other specific employment skills courses. The College also provides a variety of extension programs which are offered at the community level via field instructors. Field programs are offered in conjunction with local adult education centres or via community governments.

The provision of education services in N.W.T. communities is guided by the N.W.T. Education Ordinance which allows for the establishment of local Education Committees, Boards or Societies. Each of these bodies has varying levels of responsibility which range from those inherent in an advisory body and those inherent in a decision making body. The Ordinance also provides direction with respect to the provision of language instruction and the

TABLE 23
PRIMARY, SECONDARY & CONTINUING EDUCATION FACILITIES

Location	Classrooms Fixed	Classrooms Portable	Grades Taught	Staff Teachers	C/A	Education Committee	1984 Enrollment	Adult Ed. Classrooms Fixed	Adult Ed. Classrooms Portable	Adult Ed. Full-time Instructors
Bathurst Inlet	-	-	-	-	-	-	-	-	-	N
Bay Chimo	1	-	K-4	1	-	-	not/avail.	-	-	N
Cambridge Bay	12	2	K-9	12.5	5	C	224	-	-	Y
Coppermine	12	2	K-9	11.5	5	C	189	-	2	Y
Gjoa Haven	8	3	K-9	11	4	S	239	-	1	Y
Holman Island	2	3	K-9	4.5	2	C	94	-	-	N
Pelly Bay	5	-	K-7	5	2.5	C	101	-	-	N
Spence Bay	9	1	K-7	7.5	4	S	131	-	1	Y

SOURCES: 1)Dept. of Education, G.N.W.T.
2)Outcrop, N.W.T. Data Book 1984/85

NOTES: Education Committee: C=Committee B= School Board S= Society
C/A = Classroom assistants Y= yes N= no
Classrooms include all home economics, trade shops and kindergarten classrooms as well as regular academic classrooms.

TABLE 24
SPECIAL AND REGULAR EXTENSION COURSES, 1984-85

Location	Course	Date of Program
Cambridge Bay	Basic Office Practice	Sept.24/84-Mar.29/85
	Carpentry	Jan.7/85-Mar.29/85
Coppermine	English as Second Language	Sept.24/84-Dec.14/84
Spence Bay	English as Second Language	Jan.14/85-Mar.29/85

SOURCE: Registrar, Thebacha College

inclusion of various types of programs. With respect to language, the Ordinance allows for instruction in the language of the community for k-grade 2 classes and from grade 3+ allows English to be taught as a second language. It is noted that the level of classroom assistants engaged is an indication of that particular community's interest in the instruction of the language of the community.

With respect to adult education, facilities and instructors are not available in every community in the region. Because participation in adult education classes vary regularly, it is not valid to present enrollment fiqures. Variables which impact participation in adult education courses include: availability of employment and requirements for additional training, nature of course offered and availability of training salaries. Courses which are generally offered at community adult education centres include: academic upgrading or B.T.S.D., special interest courses and field programs via Thebacha College (ie. pre-employment trade courses and cooking, basic office practices, etc. It is noted that regional residents access university programs on a correspondence basis from Athabasca University in Edmonton.

Health and Social Services

Tables 25 to 27 provide information on health and social services available in each of the communities in the region. Health services in the N.W.T. are provided by the G.N.W.T. Dept. of Health and Health and Welfare Canada. Most social services are provided by the G.N.W.T. Dept. of Social Services and under joint agreements with federal agencies .

The Dept. of Health provides health information programs for schools and local health staff and committees. It administers a Health and Welfare Canada contract for the staffing of physicians in the north. The department also provides medical care and hospital insurance for eligible N.W.T. residents. It is noted that there is no premium payable for hospital insurance. A broad range of insured services are available from the department including medical care, hospital care, pharmacare, and medical travel. The hospital insurance benefit covers detoxification services available at approved territorial and provincial centres such as the University Hospital in Edmonton. Since there is no hospital in the Kitikmeot region, all local residents are evacuated to Yellowknife or in special cases to Edmonton, for hospital care.

The extent to which services are sought outside the home community is not well documented by the Dept. of Health. For example, data on medical evacuations is not available as the current system documents only the authorizing institution and

TABLE 25
HEALTH AND MEDICAL FACILITIES AND STAFF, 1984
(public facilities only)

Location	Beds	Cribs	Physicians	Nurses	Dental Therapists	Other	Facility Utilization: Inpatient Sep.	Inpatient Days	Newborn Sep.	Newborn Days	Outpatient Days
Bathurst Inlet	-	-	-	-	-	-			NO FACILITIES		
Bay Chimo	-	-	-	-	-	LD			NO FACILITIES		
Cambridge Bay	6	2	1	5	1	-	44	58	1	1	2770
Copperaine	4	1	-	3	-	-	13	15	-	-	4875
Gjoa Haven	6	2	-	2	-	-	22	27	2	3	4750
Holman Island	3	2	-	1	-	-	1	5	-	-	1269
Pelly Bay	3	1	-	1	-	-	15	18	-	-	1697
Spence Bay	4	2	-	2	1	-	48	61	1	2	4487

NOTES:LD= Lay Dispenser

Sep.-(Separations) refers to the number of patients leaving the facilitiy either discharged or transferred to another facility, as well as those deceased.

SOURCES: 1) Health and Welfare Canada,Yellowknife
2) Health and Welfare Canada, Territorial Hospital Insurance Services and Medicare, Annual Report, 1983.
3) Morton Warner,The 1981 Central Arctic Area Health Study, 1981
4) Outcrop, N.W.T. Data Book, 1984/85

TABLE 26
PHYSICIAN VISITS, 1982.

Location	Visits by General Practitioners		Visits by Medical Specialists		Visits by Dentists	
	visits	days	visits	days	visits	days
Bathurst Inlet	-	-	-	-	-	-
Bay Chimo	-	-	-	-	-	-
Cambridge Bay	13	300	8	45	3	41
Coppermine	6	17	9	17	3	11
Gjoa Haven	9	26	6	15	3	44
Holman Island	4	19	2	6	4	36
Pelly Bay	1	1	4	11	4	12
Spence Bay	8	28	4	13	3	28

SOURCE: Health and Welfare Canada

TABLE 27
SOCIAL PROGRAMS AND FACILITIES, 1984.

Location	Social Serv. Officer(s)	Drug/Alcohol Program	Senior's Home	Receiving Home	Child Day-care	Social Coun-selling	Home-maker Program	Churches	Group Home	Correction Services
Bathurst Inlet	from Cam. Bay	N	N	N	N	N	N	1	N	N
Bay Chimo	from Cam. Bay	N	N	N	N	N	N	-	N	N
Cambridge Bay	Y	DI//PE/NRC	N	N	N	F/J	Y	4	Y	N
Coppermine	Y	DI/PE/NRC	N	N	N	F/J	Y	3	N	N
Gjoa Haven	Y	N	N	N	N	N	N	1	N	N
Holman Island	from Coppermine	N	N	N	N	N	N	1	N	N
Pelly Bay	from Cam. Bay	N	N	N	N	N	N	1	N	N
Spence Bay	Y	DI/D/PE	N	N	N	F	N	2	N	N

SOURCES: 1. Health & Welfare Canada, Report on Health Conditions in the N.W.T., 1982.
2. G.N.W.T., Report to the Legislative Assembly, 1979-84, Alcohol & Drug Co-ordinating Council
3. G.N.W.T., N.W.T. Plan in Corrections, Goals & Objectives, 1984
4. Morton Warner, The 1981 Central Arctic Area Heath Study, 1981
5. Outcrop, N.W.T. Data Book, 1984/85

NOTES: Homemaker Program - all communities are eligiable. They must demonstrate a need for it.
Social Counselling: J=Job related F=Family related Y=Youth related
Y=Yes N=No
RT=Residential treatment; NRC= Non-residential counselling
YOCI= Youth oriented crisis intervention; DI= Drop-in centre
D= Diversionary/alternative activities; PE= Preventive education

does not prepare separate travel warrants for each of the medical evacuees.

Nursing stations, nursing station staff and health centres are provided by the Medical Service branch of Health and Welfare Canada. Medical officers, public health nurses, environmental health officers and community health representatives are employed by Health and Welfare and private medical practitioners are retained under contractual agreement.

The Dept. of Social Services provides services for the aged and handicapped; for the treatment, rehabilitation and prevention of alcohol and drug abuse; family and children's support services; corrections services; and financial or social assistance services.

Protection Services

The Royal Canadian Mounted Police "G" Division has its headquarters in Yellowknife and provides policing services to all of the N.W.T. under contract to the Gov't of the N.W.T. The R.C.M.P. has both Federal and Territorial police responsibilities. A summary of police and related services is presented in Table 28.

The Inuvik Sub-Division is responsible for providing protection services to the Kitikmeot region. The following Kitikmeot detachments are served from Inuvik: Cambridge Bay, Coppermine, Spence Bay and, in 1985, Gjoa Haven. These detachments are responsible for providing protection to nearby smaller communities as illustrated in the above mentioned table.

In addition to policing services, the R.C.M.P. also patrol exploration camps, tourist/fishing lodges and camps (for customs duty inspections) and throughout the Kitikmeot region as required.

Each detachment is equipped with staff residences, office, and detention cells.

Justices of the Peace and coroners are hired by the Dept. of Justice and Public Services and are available in most communities throughout the region. Most of these positions are part-time with persons acting in their capacity as a J.P. or coroner as needed.

The Department of Justice and Public Services, is responsible for providing fire protection services throughout the Northwest Territories. The Fire Marshal's office in Yellowknife oversees

TABLE 28
POLICE AND RELATED SERVICES, 1984.

Location	PERSONNEL						VEHICLES			OTHER SERVICES	
	Chief Sup't/ Sup't/Insp.	Corp.	Const.	Sgt.	S/Const.	Other	Trucks/ Cars	Snow-machines	Other	J.P.	Coroner
Bathurst Inlet	POLICED BY CAMBRIDGE BAY									N	N
Bay Chimo	POLICED BY CAMBRIDGE BAY									N	N
Cambridge Bay	-	1	2	-	-	-	1	2	4	3	6
Coppermine	-	1	2	-	-	-	1	2	3	3	2
Gjoa Haven*	-	1	-	-	-	-	1	1	1	2	2
Holman Island	POLICED BY COPPERMINE									1	1
Pelly Bay	POLICED BY SPENCE BAY									1	1
Spence Bay	-	1	1	-	-	-	1	2	4	3	2

SOURCE: R.C.M.P. "G" Detachment, Yellowknife
Dept. of Justice & Public Services, G.N.W.T.

NOTES: * Gjoa Haven is currently policed from Spence Bay with a detachment scheduled for opening in 1985.

TABLE 29
FIRE PROTECTION SERVICES

	STAFF							PUMPER			
	Paid	Volunteer	Chief	Hydrant	Firehall	Call Boxes	Siren System	Type	Capacity	Flow L/s	Extinguisher
Bathurst Inlet	N	N		N	N	N	N	n/a	n/a	n/a	in homes
Cambridge Bay	N	20	Y	N	Y	Y	A.P.*	TCP**	2200L	34	
Coppermine	N	11	Y	N	Y	Y	central	FMP	4086L	47	
Gjoa Haven	N	12	Y	N	Y	N	phones	TCP	2200L	34	
Holman Island	N	11	Y	N	N	Y	alarms	n/a	n/a	n/a	350 lb. dry chem. on wheel
Pelly Bay	N	10	Y	N	Y	N	phones	TCP	2200L	34	
Spence Bay	N	10		N	Y	Y(17)	phones	TCP	2200L	34	

NOTES: * An "A.P." is an annunciator panel, which serves as a signal. Cl boxes go to the A.P., then annunciator panels contact firefighters.

** A "TCP" is a standard triple combination pumper fire truck; an "FMP" is a front mount pumper.

SOURCES:
1) NWT Data Book 84/85
2) GNWT, Local Government, Technical Services Report Kitikmeot Region, 1982.
3) GNWT, Justice and Public Services, NWT Fire Loss Record 1983.
4) Heinke and Bowering, Fire Protection and Prevention in Communities of the Northwest Territories and Yukon Territory, April 1980.

the development and maintenance of community fire brigades. Funding for hamlets and settlements is administered by the Department of Local Government; tax-based communities provide fire protection services as part of municipal services.

Both the Fire Marshal and Department of Local Government have attempted to standardize fire fighting equipment and support systems, but a variety of trucks, alarms, staffings, and buildings still exist. The Fire Marshal appoints a volunteer fire chief in each community whose responsibilities include housing inspections, submission of fire reports, and training sessions for volunteers. Fire protection services are outlined in Table 29.

Tourism and Recreation Facilities

Table 30 illustrates major indoor and outdoor recreation facilities and basic human resources available within the region. Most of the facilities available in communities are via the Dept. of Local Government, Recreation Division which provides financial and human resources to develop a variety of public recreation services. A G.N.W.T. recreation officer is located at the regional office and provides ongoing support to the development of recreation at the community level.

Table 31 is an enumeration of all accommodation facilities in the region. Further information on these services is available in the business infrastructure section of this report, Appendix A and Table 89.

TABLE 38
RECREATION FACILITIES, 1984.

	INDOOR								OUTDOOR				HUMAN RESOURCES	
	Arena	Multi-Purpose/ Community Hall	Gym	Curling Rink	Pool	Library	Play field	Play ground	Rink	Pool	Ski Trails	Other	Paid Co-ordinator	Rec. Committee
Bathurst Inlet	N	Y	N	N	N	N	N	Y	N	N	N	N	N	Y
Cambridge Bay	Y	Y	Y	Y	N	Y	Y	Y	N	N	Y	N	Y	Y
Coppermine	Y	Y	Y	N	N	Y	Y	Y	N	N	N	N	Y	Y
Gjoa Haven	N	Y	Y	N	N	Y	Y	Y	N	N	N	N	N	Y
Holman Island	N	Y	N	N	N	N	Y	Y	Y	N	N	N	N	Y
Pelly Bay	N	Y	N	N	N	N	Y	Y	N	N	N	N	N	Y
Spence Bay	N	Y	Y	N	N	Y	Y	Y	N	N	N	N	N	Y

SOURCES: 1) G.N.W.T., Dept. of Local Government, Recreation Division
2) N.W.T. Data Book, 1984/85

NOTES: Y= yes N= no

TABLE 31
ACCOMMODATION FACILITIES, 1984

LOCATION	NAME	CAPACITY	BEDS	BATHROOM	FACILITIES
Bathurst Inlet	Bathurst Inlet Lodge	20	1+/Room (S)	SB	D
Cambridge Bay	Ikaluktutiak Co-op	40	2/Room (S)	SB	DC
Copperaine	Copperaine Inn	40	3+/Room (S)	SB	D
Gjoa Haven	Nakertak Co-op	12	2/Room (S)	SB	D
Holman Island	Arctic Char Inn	20	3+/Room (S)	SB	D
Pelly Bay	Pelly Bay Hotel	18	3/Room (S)	SB	D
Spence Bay	Paleolook Hotel	18	2+/Room (S)	SB	D

NOTES: C= conference/meeting facilities D= dining facilities
L= lounge facilities S= shared accommodation
PB= Private Bathroom Facilities SB= Shared Bathroom Facilities

SOURCE: G.N.W.T. Official Explorer's Guide, 1984

SECTION TWO: COMMODITY FLOW PROFILE

Introduction

The purpose of the commodity flow profile is to enumerate the flow of goods and services into and out of the Kitikmeot region. It can be readily used to identify the current economic base strengths as well as the major areas of expenditures on imported goods.

No attempt has been made to identify "where the dollars stop." The Kitikmeot is a very open economy and capital flows into and out of the region quite readily. Because the public sector is a major employer, much of the support comes from outside of the region. Similarly, any form of private investment (such as mining activity) contributes to the well-being of the region through capital injections. Although such financial flows are important in assessing the gross regional product of an area, the current level of information precludes undertaking an analysis of these flows.

Some comments on the methods used to obtain the information presented must be made. to assist the reader in interpreting the data. The commodity import section in particular requires further explanation. Ideally, commodity imports would be identified by a)obtaining accurate information from retailers in the communities, b)presenting "actual" traffic data from the carriers, and c)determining exact amounts of goods sent to the region by point of origin, eg. Yellowknife or Edmonton. There are many difficulties with these approaches.

Most retailers, including the Hudson's Bay Company, consider commodity import information to be confidential in nature, because a company's market share would be obvious from the figures provided. As such, no information was ascertained from the H.B.C. Additionally, accounting practices rarely accommodate this data collection process, as some companies keep records of sales in dollar figures only, while others provide a breakdown of types of goods and services sold.

Traffic data from the carriers (primarily Pacific Western, Northwest Territorial Airways, and Northern Transportation Company Ltd.) presents another problem. A detailed description of goods barged into the communities of the Kitikmeot was provided by NTCL for 1984, but many items could not be identified. Containers and vans put on the barge in Hay River were recorded as such - their contents were not described. Informed opinions determined the distribution of commodities in these containers, and mention is made of this in the description of commodities imported. Information was obtained from the airlines by reviewing

several months' waybills, thereby obtaining "actual" traffic figures from which annual estimates were derived. No attempt is made to describe special projects in the region, which may have accounted for large shipments of building supplies. In addition, no attempt has been made to justify the figures presented - food imports, for example, seem very low when one calculates individual food consumption (see population profile, Table 67, and food imports, Table 36). Consumption of country foods may in part explain this discrepancy, but no attempt at reconciliation of the data has been made.

The third method of obtaining import information, i.e. by point of origin, presents a multitude of problems. Goods enter the Kitikmeot region by air and barge only. Most air cargo comes from Yellowknife and Edmonton. The large number of individuals and companies involved in exporting goods to communities in the Kitikmeot region make it impossible to interview each and obtain accurate information. Most barge cargo comes from Hay River. Goods from Hay River usually originate in Alberta. They are trucked to Hay River, and then they are stored until it is time for the barge to leave. It is impossible to determine the origin of goods, once they reach Hay River. For this reason, no attempt has been made to trace commodity imports to their actual point of origin. For the purposes of this study, destinations outside of the Kitikmeot region are considered valid points of origin (ie. the origin of goods is the last point of departure outside of the Kitikmeot region).

In spite of the above caveats, it should be noted that the data are provided in a form which can be used with significant confidence in undertaking comparative analysis. They should however, be used with caution in absolute terms or for highly disaggregated cost centres.

The study identifies the flows into and out of the region. No attempt has been made to identify the flow of goods within the region. It shall be noted here, however, that a limited amount of resupply-on-demand occurs from Cambridge Bay to several Arctic coast communities.

The data is organized under the following headings: commodity exports, commodity imports, and service flows. The principal sources for estimating the inflows were the transporters serving the region. The categories of classification are not consistent with Standard Industrial Classification (SIC) categories used by Statistics Canada and, as such, no definitive conclusions can be drawn regarding the detailed commodities purchased within the region.

The following sections provide detailed information regarding the

commodity flows. The value of all goods excludes transportation costs. Thus, the value of commodity exports refer to their value in the Kitikmeot, and the value of commodity imports refer to their value at the shipping point outside of the Kitikmeot. The value of transportation services, indicating the total cost of trading the goods, is considered independently. A summary of the information is provided in the "Summary" section.

Transportation tariffs, electricity rates, fuel costs, and commodity costs by weight are presented independently.

Commodity Exports

Minerals

There are no producing mines in the Kitikmeot region thus, mineral exports are nil. As is noted in the natural resource profile of this study and in Tables 53 and 54 there are a number of good mineralization sites and prospects in the region.

Furs

Table 32 shows the quantity and value of fur exports by community. The GNWT Department of Renewable Resources provided data on the quantity and value of fur exports.

Local trappers have four main vehicles for selling their furs: the local Co-op store, the Hudson's Bay store, via the local wildlife officer or directly to the fur auctions in southern Canada. Because many trappers require an immediate cash return in order to maintain themselves, many trappers deal directly with local retail outlets. In cases where the trapper can afford to wait to get a return on his furs, the trapper will deal directly with the fur auctions or via the local wildlife officer.

Many of the furs from the Kitikmeot region which are sent through the Hudson's Bay Co. system are sold in eastern Canada while Co-op and direct sales are largely with the Western Canada Fur Auction.

Fisheries

Table 33 shows production, revenue and export data for the Kitikmeot's commercial fishing industry. Arctic Co-operative's Ltd. via its local member co-operatives are the main operators of commercial fishing in the region, often working in conjunction with local Hunters' and Trappers' Associations. Although Cambridge Bay is the regional centre for commercial fishing operations, Gjoa Haven, Pelly Bay and Spence Bay are also actively involved in this type of operation.

TABLE 32
FUR EXPORTS, 1982-83.

	Bay Chimo/ Bathurst In.	Cambridge Bay	Coppermine	Gjoa Haven	Holman Island	Pelly Bay	Spence Bay	TOTAL KITIKMEOT
Polar Bear:		2	3	3	1	4	12	25
		$1825	$2700	$3371	$650	$3600	$10175	$22,321
Fox:								
Blue	1	2	11	5	4	-	5	28
	$50	$75	$290	$100	$105	-	$96	$716
Cross	6	1	69	-	2	-	1	79
	$368	$40	$4555	-	$96	-	$30	$5089
Red	62	3	227	-	6	1	5	304
	$2401	$138	$9904	-	$187	$8	$160	$12,798
Silver	1	1	6	-	-	-	-	8
	$70	$50	$240	-	-	-	-	$360
White	178	945	645	912	455	7	353	3495
	$5107	$17172	$17290	$17890	$10393	$110	$5595	$72,758
Marten	-	-	2	-	-	-	-	2
	-	-	$35	-	-	-	-	$35
Otter	-	-	2	-	-	-	-	2
	-	-	$60	-	-	-	-	$60
Ground Squirrel	-	49	-	15	-	-	-	64
	-	$122	-	$12	-	-	-	$134
Wolf	9	2	69	2	5	6	2	95
	$2285	$475	$17270	$420	$745	$265	$250	$21,630
Wolverine	10	-	26	-	-	2	-	38
	$2285	-	$7465	-	-	$250	-	$9920
Seal:								
Harp	-	-	-	1	-	-	-	1
	-	-	-	$10	-	-	-	$10
Ring	-	86	893	5	1497	-	196	2677
	-	$1115	$7472	$49	$21680	-	$2696	$33,013
Other	-	-	69	-	8	-	-	77
	-	-	$420	-	$77	-	-	$497
TOTAL VALUE	$12,486	$21,812	$67,782	$21,853	$33,933	$4,233	$19,802	$179,343

SOURCE: GNWT, Department of Renewable Resources, Yellowknife

NOTE: Number of pelts is recorded for each species; dollar value is directly below this number.

TABLE 33
ESTIMATED COMMERCIAL FISH PRODUCTION AND EXPORTS, 1982

Number of Commercial Plants: 1

Location: Cambridge Bay

Owner/Operator: Arctic Co-operatives Limited

Total Production: 33,091kg

Fishing Areas: Throughout Kitikmeot Region

TOTAL VALUE: $180,200(a)

NOTES: (a) This is for export. All fish production for export is regulated by the Freshwater Fish Marketing Corporation.

SOURCE: GNWT, Department of Economic Development and Tourism, Yellowknife

Arts and Crafts

Table 34 shows the exports of arts and crafts from the region. This data was obtained from the GNWT Department of Economic Development and Tourism. Figures presented represent the dollar value of arts and crafts sold at the Co-op store in each community. Although arts and crafts items are also sold privately and through other retail outlets such as the Hudson's Bay Co., these figures were unobtainable because of their proprietory nature.

Arts and crafts leave the Kitikmeot region through sales at each Co-op store as well as through distribution to other Arctic Co-operative stores such as the Northern Images stores in Whitehorse, Inuvik, Yellowknife, and Edmonton. Northern Images stores are owned and operated by the Arctic Co-operative's Ltd.

Commodity Imports

Fuels

Table 35 shows the 1982 quantities and values of fuel imports. The fuels identified follow the breakdown provided by the GNWT Petroleum Products Division, the major importer of fuels into the communities. The GNWT Petroleum Products Division (POL) serves Coppermine, Gjoa Haven, Holman Island, Pelly Bay and Spence Bay. Cambridge Bay, Bathurst Inlet, and Bay Chimo are served by Fred Ross & Associates. The "Heating P-50" category includes diesel used for the generation of electrical power. Mogas is gasoline for vehicles. TurboB is largely used in airplanes, as is 100-130, or Avgas. Fuel imports are brought to the Kitikmeot by summer barge, except for Pelly Bay which is served by air only, from Resolute Bay. The resupply barge route is indicated in Figure 3. Dollar values are based on the retail price of each fuel.

Food

Table 36 shows food imports into the region for 1984. Figures for 1982 were not available. With the exception the eastern community of Pelly Bay which is supplied from Ontario/Quebec and to some extent Spence Bay and Gjoa Haven which are also supplied from eastern Canada, most resupply is done by air from Yellowknife and Edmonton, meeting demand as it arises. Fresh produce is flown into each community once a week, as are dairy products, meats, and various dry goods. The summer barge brings an inventory of dry and tinned foodstuffs into each community but Pelly Bay, which is served by air only.

The information presented in Table 36 was obtained by examining air waybills and recording the weights of foods imported, as well

PRIMARY COMMODITY FLOW ROUTES 3

●●●● NTCL BARGE

*FOR SCHEDULED AIR SERVICE SEE MAP 2

Kitikmeot Region Economic Base Study

Lutra Associates Ltd.
H.J. Ruitenbeek Resource Consulting Limited

Prepared for the Government of the Northwest Territories

FEBRUARY 1985

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TABLE 34
ARTS AND CRAFTS EXPORTS, 1982

	Value of Exports
Bathurst Inlet	-
Bay Chimo	-
Cambridge Bay	$160,380
Coppermine	$134,270
Gjoa Haven	$ 85,057
Holman Island	$182,249
Pelly Bay	$ 13,296
Spence Bay	$ 45,066
TOTAL	$620,318

SOURCE: GNWT, Department of Economic Development and Tourism, Yellowknife and Cambridge Bay

TABLE 35
ESTIMATED FUEL IMPORTTS, 1982
Upper figures: tonneage; lower figures: dollar value('000)

	Heating P-50	Mogas	Avgas 100-130	TurboB	TOTALS	MODE/ ORIGIN
Bathurst Inlet(a)	74	-	-	-	74	Barge
	$ 81	-	-	-	$ 81	Norman Wells
Bay Chimo(a)	147	74	-	-	221	Barge
	$ 164	$ 73	-	-	$ 237	Norman Wells
Cambridge Bay	2025	368	552	368	3313	Barge
	$1825	$ 354	$ 654	$409	$ 3243	N.Wells, HayRiver
Coppermine	1289	343	232	138	2002	Barge
	$ 811	$ 241	$ 152	$117	$ 1323	N.Wells, HayRiver
Gjoa Haven	1421	182	-	-	1603	Barge
	$1034	$ 139	-	-	$ 1174	Norman Wells
Holman Island	872	151	11	75	1109	Barge
	$ 570	$ 106	$ 7	$ 63	$ 747	N.Wells, HayRiver
Pelly Bay	725	146	-	-	871	Air
	$ 617	$ 133	-	-	$ 751	Resolute
Spence Bay	1427	203	61	-	1691	Barge
	$1039	$ 153	$ 45	-	$ 1239	Norman Wells
TOTALS*	7980	1467	856	581	10,884	
	$6141	$1119	$ 860	$590	$ 8795	

SOURCES: 1) GNWT Petroleum Products Division, Yellowknife
2) Fred H. Ross Associates
3) Northern Transportation Company Limited
4) NWT Data Book 82-83

NOTES: * Discrepancies in totals are due to data rounding to the the nearest dollar, at source.
(a) Aviation fuel, TurboB, gasoline and other drum products are brought in on demand. The figures given for gasoline in Bay Chimo indicate storage capacity. Resupply is on demand.

Data should be utilized with caution. Attempts to undertake per capita comparisons or other data comparisons should be minimized due to varying methods employed to collect and record data. See text for additional details.

TABLE 36
ESTIMATED FOOD IMPORTS, 1984 (b)

	TONNES						VALUE (a)
	Hay River*	Inuvik*	Yellowknife**	Edmonton**	Ontario/Que.**	TOTAL	('000)
Bathurst Inlet	-	-	-	-	-	-	-
Bay Chimo	18.54	-	-	-	-	18.54	$ 68.8
Cambridge Bay	78.72	14.98	59.36	181.94	13.52	348.44	1,292.7
Coppermine	26.00	12.98	27.00	85.12	6.30	158.12	586.6
Gjoa Haven	21.82	-	16.66	51.86	3.78	93.32	345.8
Holman Island	9.82	1.64	11.12	34.86	2.50	59.14	219.4
Pelly Bay	-	-	9.70	29.76	2.24	41.70	154.7
Spence Bay	11.56	-	13.90	42.56	3.14	71.16	264.0
TOTAL	166.46	29.44	138.64	424.50	31.48	790.52	$2,932.0

SOURCES: (1) Northern Transportation Company Limited, Edmonton
(2) Northwest Territorial Airways, Cambridge Bay
(3) Pacific Western, Cambridge Bay

NOTES: * Imports by barge
** Imports by air
(a) Dollar values are derived by assuming $3.71/kg, see Table 52.
(b) Figures for 1982 are not available from the carriers.

Data should be utilized with caution. Attempts to undertake per capita comparisons or other data comparisons should be minimized due to varying methods employed to collect and record data. See text for additional details.

as noting origin/destination information where available. A detailed description of goods transported by NTCL was used to determine volumes imported by barge. The figures remain estimates, however, as there are various limitations to the approach taken. Information provided on waybills is often difficult to read, incomplete and occasionally, inaccurate. Ten percent of PW's waybills for 1984 were examined, then used as a basis for estimating the year's volumes. In some instances, familiarity with the consignee determined the description of goods shipped (eg. monthly shipments by the Hudson's Bay Company were assumed to be part food, and part general merchandise.) Similar limitations exist with regard to goods barged into the communities. The precise content of containers and vans (truckloads) was not known.

Lumber

Table 37 shows lumber and building material imports into the region for 1984. Building materials includes all items required by the construction industry and subtrades, including electrical supplies, cabinets, fixtures, insulation, etc. Dollar values of imports were calculated by assigning a price of $0.72/kg, which should not be used as a precise figure for further calculations. It is consistent with the figure used for calculating the value of lumber imports into the Keewatin region. An accurate dollar value/kilogram for the variety of items included in "building materials" could not be determined for the Kitikmeot region.

Most building materials are brought to the communities by barge. The exception to this is Pelly Bay where all building materials are airlifted in, mostly by Hercules. Sealift orders are placed well in advance and space reserved on the barge by November, to ensure delivery the following summer. Individuals who wish to build housing or office space must first ensure that land is available (see "developable land" section, Table 7) guarantee financing, and then order materials and arrange shipping. If this is not all arranged by November, the project will be postponed for a year. This factor frustrates private contractors and builders who are active in the region. Materials can be flown into the communities, but the added cost of air freight (see Table 51) will greatly inflate the total cost of the project.

Vehicles and Heavy Machinery

Table 38 shows the tonneage and value of vehicles and heavy machinery imported in 1984. This category includes snowmobiles, three-wheelers, sleds, boats, fire fighting equipment, vehicles, and parts for repairs. Given the lack of a road system between communities, there is essentially no need for normal passenger

TABLE 37
ESTIMATED LUMBER AND BUILDING MATERIAL IMPORTS, 1984 (b)

	TONNES							VALUE(
	Hay River*	Inuvik*	Yellowknife**	Alberta**	Sask.**	Manitoba**	TOTAL	('000)
Bathurst Inlet	-	-	-	-	-	-	-	
Bay Chimo	-	-	-	-	-	-	-	
Cambridge Bay	1093.58	12.27	15.94	28.15	0.36	0.18	1150.48	$ 828
Coppermine	1020.21	-	18.50	32.67	0.42	0.18	1079.98	777
Gjoa Haven	485.91	-	8.73	15.39	0.20	0.06	510.29	367
Holman Island	270.97	-	4.80	8.58	0.11	0.02	284.56	204
Pelly Bay	-	-	-	-	-	-	-	
Spence Bay	885.86	12.27	15.94	28.15	0.36	0.18	942.68	678
TOTAL	3764.53	24.54	63.99	112.94	1.45	1.45	3967.83	$2,856

SOURCES: (1) Northern Transportation Company Limited, Edmonton
(2) Northwest Territorial Airways, Cambridge Bay
(3) Pacific Western, Cambridge Bay
(4) Arctic Transportation Limited, Calgary

NOTES: * Imports by barge
** Imports by air
(a) Dollar values are derived by assuming $0.72/kg, see Table 52.
(b) Figures for 1982 are not available from the carriers.

These figures are estimates, based on a review of transportation waybills. The communities of Bathurst Inlet, Bay Chimo, and Pelly Bay were not listed as destinations on any of the companies' waybills. Most materials are shipped to Pelly Bay via air charter. Records from shippers (DPW, NWTHC, etc.) were not available for viewing and therefore are not included.

Lumber and building materials are defined as all items required by the construction industry and subtrades, including electrical supplies, cabinets, fixtures, insulation, etc. See text for additional information.

TABLE 38
ESTIMATED VEHICLES AND HEAVY MACHINERY IMPORTS, 1984 (b)

	TONNES								VALUE (a)
	Hay River*	Inuvik*	Yellowknife**	B.C.**	Alberta**	Sask.**	Ontario**	TOTAL	('000)
Bathurst Inlet	-	-	-	-	-	-	-	-	-
Bay Chimo	-	-	-	-	-	-	-	-	-
Cambridge Bay	43.36	1.45	2.76	5.46	6.54	3.16	0.12	62.85	$ 988.6
Coppermine	28.45	-	1.24	2.40	2.88	1.38	0.05	28.40	446.7
Gjoa Haven	28.27	-	1.24	2.40	2.88	1.38	0.05	28.22	443.9
Holman Island	14.27	-	0.83	1.60	1.92	0.92	0.03	19.57	307.8
Pelly Bay	-	-	-	-	-	-	-	-	-
Spence Bay	31.82	-	2.05	4.01	4.80	2.31	0.09	45.08	709.1
TOTAL	138.17	1.45	8.12	15.87	19.02	9.15	0.34	184.12	$ 2896.2

SOURCES: (1) Northwest Territorial Airways, Cambridge Bay
(2) Pacific Western, Cambridge Bay
(3) Northern Transportation Company Limited, Edmonton

NOTES: * Imported by barge
** Imported by air
(a) Dollar values are derived by assuming $15.73/kg, see Table 52.
(b) Figures for 1982 are not available from the carriers.

These figures are estimated, based on a review of transportation waybills. The communities of Bay Chimo, Bathurst Inlet, and Pelly Bay were not listed as destinations on any of the companies' waybills.

Vehicles and heavy equipment include snowmobiles, three-wheelers, boats, parts, municipal vehicles and private vehicles.

TABLE 39
ESTIMATED GENERAL MERCHANDISE IMPORTS, 1984 (d)

	TONNES										VALUE(a)
	HayRiver*	Inuvik*	N.Wells*	Y'knife**	Resolute**	Whitehorse**	B.C.**	Alta.**	Man/Ont.**	TOTAL	('000)
Bathurst Inlet(c)	-	-	-	-	-	-	-	-	-	-	-
Bay Chimo(c)	-	-	-	-	-	-	-	-	-	-	-
Cambridge Bay	48.36	-	2.27	23.38	1.11	0.12	0.08	15.47	1.32	84.11	$ 206.9
Coppermine	18.65	-	-	5.63	0.26	0.03	0.02	3.74	0.34	28.67	58.8
Gjoa Haven	22.19	-	-	12.89	0.57	0.08	0.04	8.08	0.68	43.65	107.3
Holman Island	3.64	2.36	-	3.22	0.16	0.01	0.01	2.13	0.17	11.70	28.8
Pelly Bay	-	-	-	-	-	-	-	-	-	88.83(b)	198.8(b
Spence Bay	64.70	-	-	35.47	1.68	0.19	0.13	23.49	2.02	127.68	314.1
TOTAL	141.54	2.36	2.27	79.79	3.78	0.43	0.28	52.83	4.53	368.64	$ 906.7

SOURCES: 1) Northern Transportation Company Limited, Edmonton
2) Northwest Territorial Airways, Cambridge Bay
3) Pacific Western, Cambridge Bay
4) Koomiut Co-op, Pelly Bay

NOTES: * Imports by barge
** Imports by air

(a) Dollar values are derived by assuming $2.46/kg, see Table 52.

(b) These figures come from the Co-op in Pelly Bay. They represent the weight and value of all items sold at the Co-op, excluding food and fuel. A reasonable basis for estimating origins of goods and commodity breakdowns was not available, so the figure is presented as a total only. For this reason, the bottom figure in the "TOTAL" column (i.e. 368.64 tonnes) is not the sum of columns 1-9, but that sum plus 88.83 tonnes.

c) The figures in this table are estimates, based on a review of transportation waybills. Bathurst Inlet and Bay Chimo were not listed as destinations on any of the companies' waybills.

d) Figures for 1982 were not available from the carriers.

vehicles. There are however a number of passenger vehicles registered in the community (see Table 19). Each community does, have a number of trucks and similar utility vehicles for the performance of essential municipal services.

General Merchandise

General merchandise imports are shown in Table 39. This category includes alcohol, paper products, non-food dry goods, medical supplies, and items that were not identified on air waybills. Igloos, the large containers used by the airlines to ship goods, are usually noted in waybills as a gross tonneage, with no description of contents. The consignee's name was used to estimate the contents (eg. as with food, the breakdown for igloos consigned by the Hudson's Bay Company was often assumed to be 50% food, 50% general merchandise). The content of containers and vans on the barge was also unknown. Discussions with NTCL personnel formed the basis of estimating tonneages of general merchandise shipped. Dollar values of tonneages were calculated by assigning an estimated value of $2.46 per kilogram of merchandise. A large variety of merchandise is included in this category, as well as goods that were not identifiable. The figure of $2.46/kg is used as a guideline only.

There is a considerable amount of personal effects entering each community, most belonging to GNWT employees who are relocating. This was not included as a commodity flow. It is also noted that liquor imports are included in the general merchandise import estimates. Although the liquor store in Cambridge Bay (there is no other in the region) was closed in 1981, residents continued to import beer, wine and spirits from Yellowknife for private consumption. Despite the re-opening of the liquor agency in October of 1983, liquor imports by private individuals continues. It is not known the exact volume of these imports but liquor store retail sales available for the period 1981 provide some indication of liquor consumption. In 1981, gross sales for the Cambridge Bay store were $98,210. (G.N.W.T., N.W.T. Liquor Control System and Liquor Licensing Board 28th Annual Report, 1981/82).

Service Flows

Expenditures by Visitors

Table 40 shows the number of visitors to the region and their expenditures for 1982. A visitor to the region spent an average of $1,111. in 1982. Travel studies commissioned by the G.N.W.T. Dept. of Economic Development & Tourism provided volumes of

TABLE 40
ESTIMATED EXPENDITURES BY VISITORS, 1982

Survey Period	Number of Visitors Vacation	Business	Total	Total Expenditures	Average Expenditure
Year 1981 (1)	3060	1440	4500	$5,000,000	$1,111
Summer 1982 (2)	150	250	400	$ 440,000	$1,100

SOURCES: 1) Deloitte, Haskins, and Sells Associates, "Northwest Territories Travel Surveys 1981-1982, Summary Report." Survey period June 1981 - May 1982.

2) GNWT Department of Economic Development and Tourism, visitors to the Northwest Territories" 1982. Survey period June - September 1982.

visitors and expenditures. These studies also noted that the bulk of travel to the region was for pleasure.

It is noted that a tourism development and marketing strategy is currently being prepared for the Kitikmeot region and is scheduled for completion in mid-1985. This study should provide a more detailed profile of current visitor expenditures in the region.

Visitors to Sports Fishing Lodges

Table 41 displays data pertaining to visitors, visitor origin and total expenditures to Kitikmeot region sports fishing lodges. As is documented in Appendix A to the local business infrastructure, the sports fishing lodge industry in the Kitikmeot is quite small compared to other regions in the N.W.T.

Table 41 addresses only those sports fishing activities which occurred at establishments which have 'bed capacities'. As such, sports fishing activities by visitors to communities in the region are not recorded in this data.

It is noteworthy that the information presented in the above table is for 1980. The source used as a basis for this information was prepared by D. Topolinski and is the only detailed information currently available on this subject.

Passengers on Scheduled Airlnes

The estimated number of passengers flown in and out of the region in 1982 is documented in Table 42. The main air carriers providing service to this region are Pacific Western Airlines whose flights originate either in Calgary or Yellowknife and Northwest Territorial Airways out of Yellowknife. Additional information on scheduled air services is available in Table 18 and Figure 2.

Value of Transportation Services

The value of transportation services is shown in Table 43. The rate structures for airlines and sealifts serving the region are shown in the Summary to this section. The freight tonneage and freight costs refer to the cost of importing goods into the region. Air passenger fares have been developed from rate schedules provided by the airlines serving the region.

Summary

Tables 44-47 provide a summative display of commodity flows, commodity exports, the net value of exports by community and a summary of service values. Tables 48-53 provide information on rates structures and prices for various services in the region.

TABLE 41
ESTIMATED VISITORS TO SPORTS FISHING LODGES, 1980

Number of guests: 680

Origin of guests: 76% U.S.A.
19% provinces
4% N.W.T.
1% Other

Gross Revenue: $837,760

SOURCE: Topolinski, D. "Regional Income Analysis of Northwest Territories Fishing Lodges," 1982.

TABLE 42
ESTIMATED NUMBER OF PASSENGERS ON SCHEDULED AIRLINES,1982

Place to/from:	Cambridge Bay Out / In	Coppermine Out / In	Gjoa Haven Out / In	Holman Island Out / In	Pelly Bay Out / In	Spence Bay Out / In	TOTALS Out / In
Fort Smith	-	- / 10	- / 10	-	-	- / 20	- / 40
Yellowknife	790 / 640	- / 10	10 / 20	- / 20	-	- / 20	800 / 710
Hay River	30 / 40	10 / 10	-	-	-	-	40 / 50
Inuvik	20 / 40	30 / 50	10 / 10	-	-	10 / 10	70 / 110
Tuktoyaktuk	-	- / 10	-	-	-	-	- / 10
Rankin Inlet	- / 10	-	-	-	-	-	- / 10
Resolute Bay	- / 30	-	-	-	-	-	- / 30
Edmonton	550 / 460	40 / 50	10 / 20	- / 30	10 / 10	10 / 10	620 / 580
Calgary	110 / 70	20 / 10	-	-	-	-	130 / 80
Ottawa	- / 50	-	-	-	-	-	- / 50
Vancouver	-	-	-	-	-	10 / 10	10 / 10
Winnipeg	-	-	-	- / 10	-	-	- / 10
Toronto	-	-	-	20 / 20	-	-	20 / 20
TOTALS	1500 / 1340	100 / 150	30 / 60	20 / 80	10 / 10	30 / 70	1690 / 1710

SOURCE: Statistic Canada, Origin Destination Survey Annual

NOTES: Statistics Canada employs a method of randomly rounding data. Therefore, there is a certain error factor in this data.

TABLE 43
ESTIMATED VALUE OF TRANSPORTATION SERVICES, 1984
Destination: Kitikmeot Region

Origin	Mode	Freight Tonnes	Freight Value ($'000)	Passenger Trips	Passenger Value ($'000)	TOTAL VALUE ('000)
Norman Wells	Barge	6803	2160.4(a)	-	-	$ 2,160.4
Hay River	Barge	7410	2754.7	-	-	$ 2,754.7
Inuvik	Barge	56	11.6	-	-	$ 11.6
Ft. Smith Region	Air	268	984.8(b)	1640	318.5	$ 1,223.3
Alberta	Air	672	2840.9	1410	557.9	$ 3,398.7
Resolute Bay	Air	871	7569.0	-	-	$ 7,569.0
Montreal	Air	81	386.2	-	-	$ 386.2
Inuvik Region	Air	-	-	190	89.8	$ 89.8
Rankin Inlet	Air	-	-	10	6.1	$ 6.1
Resolute Bay	Air	-	-	30	4.4	$ 4.4
Ottawa	Air	-	-	50	32.5	$ 32.5
Vancouver	Air	-	-	20	17.6	$ 17.6
Winnipeg	Air	-	-	10	7.1	$ 7.1
Toronto	Air	-	-	40	34.5	$ 34.5
Totals		16,161	16,547.6	3400	1868.4	$17,615.9

NOTES: (a) The "Basic Rate" (i.e. class 5 freight) is used for barge freight calculations.
(b) The "Regular Freight" rate is used for air freight calculations.

SOURCES: Tables 42, 45, 50-52.

TABLE 44
SUMMARY OF COMMODITY EXPORT FLOWS, 1982

Commodity	Kitikmeot Trading Centre	Value ('000)	Quantity
Furs	Bathurst Inlet/ Bay Chimo	$12.4	267 pelts
	Cambridge Bay	$21.0	1091 pelts
	Coppermine	$67.7	2022 pelts
	Gjoa Haven	$21.1	943 pelts
	Holman Island	$33.9	1978 pelts
	Pelly Bay	$4.2	20 pelts
	Spence Bay	$19.0	574 pelts
Arts and Crafts	Cambridge Bay	$160.4	n/a (a)
	Coppermine	$134.3	n/a
	Gjoa Haven	$85.1	n/a
	Holman Island	$182.2	n/a
	Pelly Bay	$13.3	n/a
	Spence Bay	$45.1	n/a
Fish	Cambridge Bay	$180.2	33,091kg
TOTAL KITIKMEOT REGION		$979.9	

NOTES: (a) not available

SOURCES: Tables 32-34

TABLE 45
SUMMARY OF COMMODITY IMPORT FLOWS, 1984 (a)

Commodity	Kitikmeot Trade Centre	Mode of Transport	Value ('000)	Quantity (Tonnes)
FUEL (1982 Figures)	Bathurst Inlet	B-NW(b)	$ 81.0	74
	Bay Chimo	B-NW	$237.0	221
	Cambridge Bay	B-NW,HR	$3243.0	3313
	Coppermine	B-NW,HR	$1323.0	2002
	Gjoa Haven	B-NW	$1174.0	1603
	Holman Island	B-NW,HR	$747.0	1109
	Pelly Bay	A-R	$751.0	871
	Spence Bay	B-NW	$1239.0	1691
	SUBTOTAL(c)		$8795.0	10,884
FOOD	Bathurst Inlet	n/r*	n/r	n/r
	Bay Chimo	B-HR	$ 68.8	18
	Cambridge Bay	B-HR	$292.0	78
		B-I	$ 55.3	15
		A-YK	$220.2	59
		A-ED	$674.8	182
		A-O	$ 50.1	13
	Coppermine	B-HR	$ 96.5	26
		B-I	$ 47.8	13
		A-YK	$103.1	28
		A-ED	$315.8	85
		A-O	$ 23.4	6
	Gjoa Haven	B-HR	$ 80.9	22
		A-YK	$ 61.8	16
		A-ED	$189.4	51
		A-O	$ 14.0	4
	Holman Island	B-HR	$ 36.4	10
		B-I	$ 6.1	1
		A-YK	$ 41.2	11
		A-ED	$126.3	34
		A-O	$ 9.3	3
	Pelly Bay	A-YK	$ 36.0	10
		A-ED	$110.4	29
		A-O	$ 8.3	2
	Spence Bay	B-HR	$ 42.9	11
		A-YK	$ 51.5	14
		A-ED	$157.9	42
		A-O	$ 11.6	3
	SUBTOTAL		$2931.8	786

continued

TABLE 45 continued
SUMMARY OF COMMODITY IMPORT FLOWS, 1984 (a)

Commodity	Kitikmeot Trade Centre	Mode of Transport	Value ('000)	Quantity (Tonnes)
LUMBER AND BUILDING EQUIP.	Bathurst Inlet	n/r	n/r	n/r
	Bay Chimo	n/r	n/r	n/r
	Cambridge Bay	B-HR	$787.4	1093
		B-I	$ 8.8	12
		A-YK	$ 11.5	16
		A-ED	$ 20.3	28
	Coppermine	B-HR	$740.3	1028
		A-YK	$ 13.3	18
		A-ED	$ 23.5	32
	Gjoa Haven	B-HR	$349.8	486
		A-YK	$ 6.3	9
		A-ED	$ 11.1	15
	Holman Island	B-HR	$195.1	271
		A-YK	$ 3.5	5
		A-ED	$ 6.2	8
	Spence Bay	B-HR	$637.8	885
		B-I	$ 8.8	12
		A-YK	$ 11.5	16
		A-ED	$ 20.2	28
	SUBTOTAL		$2855.4	3962
VEHICLES AND HEAVY MACHINERY	Bathurst Inlet	n/r	n/r	n/r
	Bay Chimo	n/r	n/r	n/r
	Cambridge Bay	B-HR	$682.0	43
		B-I	$ 22.8	1
		A-YK	$ 43.4	3
		A-ED	$102.9	6
		A-O	$137.5	9
	Coppermine	B-HR	$321.7	20
		A-YK	$ 19.5	1
		A-ED	$ 45.3	3
		A-O	$ 60.2	4
	Gjoa Haven	B-HR	$318.8	20
		A-YK	$ 19.5	1
		A-ED	$ 45.3	3
		A-O	$ 60.2	4
	Holman Island	B-HR	$224.5	14
		A-YK	$ 13.0	1
		A-ED	$ 30.2	2
		A-O	$ 40.1	3
	Pelly Bay	n/r	n/r	n/r
	Spence Bay	B-HR	$500.5	32
		A-YK	$ 32.2	2
		A-ED	$ 75.5	5
		A-O	$100.8	6
	SUBTOTAL		$2895.9	183

continued

TABLE 45 continued
SUMMARY OF COMMODITY IMPORT FLOWS, 1984 (a)

Commodity	Kitikmeot Trade Centre	Mode of Transport	Value ('000)	Quantity (Tonnes)
GENERAL MERCH.	Bathurst Inlet	n/r	n/r	n/r
	Bay Chimo	n/r	n/r	n/r
	Cambridge Bay	B-HR	$ 99.3	48
		B-NW	$ 5.6	2
		A-YK	$ 6.5	3
		A-ED	$ 38.8	15
		A-O	$ 6.5	3
	Coppermine	B-HR	$ 26.2	11
		A-YK	$ 13.8	5
		A-ED	$ 9.2	4
		A-O	$ 1.6	1
	Gjoa Haven	B-HR	$ 54.6	22
		A-YK	$ 29.7	12
		A-ED	$ 19.7	8
		A-O	$ 3.4	1
	Holman Island	B-HR	$ 8.9	3
		B-I	$ 5.8	2
		A-YK	$ 7.9	3
		A-ED	$ 5.2	2
		A-O	$ 0.9	.3
	Pelly Bay	A-n/a	$198.8	81
	Spence Bay	B-HR	$159.1	65
		A-YK	$ 87.2	35
		A-ED	$ 57.8	23
		A-O	$ 9.9	4
	SUBTOTAL		$986.6	365
TOTAL KITIKMEOT(d)			$18,384.7	16,180

NOTES:

* n/r means no record or unknown

(a) All figures provided are for 1984, except fuel which are 1982 figures. Fuel imports in 1984 are not far different from 1982 figures. 1982 figures are presented because they are more complete.

(b) Mode of Transport codes:
B-HR; barge from Hay River
B-I; barge from Inuvik
B-NW; barge from Norman Wells
A-R; air from Resolute
A-YK; air from Yellowknife
A-ED; air from Edmonton
A-O; air from other locations, southern provinces

(c) Discrepancies in totals and subtotals are due to rounding.

(d) Special charters are not included.

SOURCE: Tables 35-39

TABLE 46
VALUE OF NET IMPORTS BY COMMUNITY - SUMMARY
($'000)

	Exports			Imports					Net Imports	Net Imports Per Capita
	Artsà Crafts	Fish	Furs	Fuel	Food	Building Supplies	Vehicles/ Equipment	General Merch.		
Bathurst Inlet/ Bay Chimo			12.4	318	68.8				374.4	4.7
Cambridge Bay	168.4	180.2	21.8	3243	1292.7	828.3	988.6	286.9	6197.9	7.3
Coppermine	134.3		67.7	1323	586.6	777.5	446.7	58.8	2982.6	3.7
Gjoa Haven	85.1		21.1	1174	345.8	367.4	443.9	187.3	2332.2	4.4
Holman Island	102.2		33.9	747	219.4	284.9	387.8	28.8	1291.8	4.4
Pelly Bay	13.3		4.2	751	154.7			198.8	1887.8	4.2
Spence Bay	45.1		19.8	1239	264.8	678.7	789.1	314.1	3148.8	7.2
TOTAL KITIKMEOT	620.4	180.2	179.3	8795	2932.8	2,856.8	2896.2	986.7	17486.7	

SOURCES: Tables 32-39, 67.

TABLE 47
VALUE OF SERVICES - SUMMARY, 1984
($'000)

	Barge Freight Charges	Air Freight Charges	Air Passenger Fares	TOTAL VALUE
Bathurst Inlet	22.4	-	-	22.4
Bay Chimo	72.7	-	-	72.7
Cambridge Bay	1617.0	970.9	759.3	3355.2
Coppermine	1013.2	539.3	101.4	1653.9
Gjoa Haven	788.3	666.3	51.7	1498.3
Holman Island	374.0	273.1	67.3	715.2
Pelly Bay	-	8141.7	16.8	8158.5
Spence Bay	1046.3	1021.6	71.9	2139.8
TOTAL KITIKMEOT REGION	4926.7	11,620.9	1068.4	17,616.8

SOURCES: Tables 42-43, 45, 50-52.

TABLE 48
ELECTRICITY RATE, 1982 and 1984*
(cents/kwh)

	Non-Government			Government	
	Domestic Service				
	1st 300 kwh/mo.	Amt. over 300kwh/mo	Commercial Service	Domestic Service	Commercial Service
Cambridge Bay	7.14 19.65	22.84 35.20	21.88 36.74	28.69 38.84	28.69 38.84
Coppermine	7.87 18.18	23.84 34.85	22.84 32.68	29.62 40.28	29.62 40.28
Gjoa Haven	7.34 19.27	28.93 33.46	28.82 38.91	34.99 49.47	34.99 49.47
Holman Island	7.41 22.56	22.67 38.47	21.69 41.35	46.51 61.76	46.51 61.76
Pelly Bay	5.97 35.74	26.72 57.38	25.55** 57.94	42.62 70.00	42.62 70.00
Spence Bay	8.20 22.13	18.80 33.19	17.99 34.14	29.45 47.23	29.45 48.33

SOURCES: (1) M&T Data Book, 82-83
(2) M&T Data Book, 84-85

NOTES: * The top figure under each column heading is for 1982, the second for 1984.
** 25.55cents is price of first 200kwh, not 300kwh;
after first 200kwh it is 19.16cents/kwh.

TABLE 49
FUEL COSTS, 1982/1984$
(per litre)

	Heating Oil	Gasoline	Aviation Fuel	Turbo B
Bathurst Inlet/ Bay Chimo	$ .98/not avail.	$ .88/not avail.	$1.48/not avail.	$1.38/not avail.
Cambridge Bay	.73/.87	.78/.88	.96/1.09	.98/1.02
Coppermine	.51/.56	.57/.66	-	.69/ .77
Gjoa Haven	.59/.65	.62/.70	-	-
Holman Island	.53/.58	.57/.66	-	-/ .72
Pelly Bay	.69/.76	.74/.83	-	-
Spence Bay	.59/.65	.61/.70	-	-

SOURCES: 1) NWT Data Book 1982-83, 1984/85
2) Fred H. Ross & Associates, Yellowknife

TABLE 50
SEALIFT TRANSPORTATION RATES, 1984

FROM HAY RIVER TO:	BASIC RATE* $/tonne	BULK FUEL $/tonne
Bathurst Inlet	$384.30	$378.21
Bay Chimo	$379.30	$373.15
Cambridge Bay	$384.30	$378.21
Coppermine	$350.00	$343.89
Gjoa Haven	$422.00	$416.72
Holman Island	$292.00	$286.68
Spence Bay	$439.00	$433.66
FROM NORMAN WELLS TO:		
Bathurst Inlet	$268.86	$303.19
Bay Chimo	$263.00	$298.12
Cambridge Bay	$268.86	$303.19
Coppermine	$234.54	$286.68
Gjoa Haven	$307.37	$341.69
Holman Island	$177.33	$231.24
Spence Bay	$324.31	$358.63
FROM INUVIK TO:		
Bathurst Inlet	$289.24	
Bay Chimo	$284.18	
Cambridge Bay	$289.24	
Coppermine	$174.91	
Gjoa Haven	$247.74	
Holman Island	$117.71	
Spence Bay	$264.68	

NOTES: * Basic Rate refers to Class 5 freight, which is most general merchandise and conforming merchandise. Higher rates apply to lightweight goods, goods requi ring special handling, etc.

SOURCE: Northern Transportation Company Ltd., Edmonton

TABLE 51
AIR TRANSPORTATION RATES, 1984

Origin	Destination	Carrier	Passenger Fare	Regular Freight ($/kg)	Regular Freight Min.($)	Priority Freight ($/kg)	Priority Freight Min. ($)
Cambridge Bay	Yellowknife	PW	$168	2.89	23	2.89	38
	Edmonton	PW		3.19			
Coppermine	Yellowknife	NWTAir	$224	2.89	23	2.33	38
	Edmonton	PW, NWTAir	$418	3.19			
Gjoa Haven	Yellowknife	NWTAir	$455	4.61	23	4.61	38
	Edmonton	PW, NWTAir	$649	5.71			
	Winnipeg	NWTAir	$764	6.45	23	6.45	23
Holman Island	Yellowknife	NWTAir	$398	2.93	23	3.71	38
	Edmonton	PW, NWTAir	$592	4.83			
	Winnipeg	NWTAir	$787	4.77	23	4.77	23
Pelly Bay	Yellowknife	NWTAir	$647	5.67	23	5.67	38
	Edmonton	PW,NWTAir	$841	6.77			
	Winnipeg	NWTAir	$956	7.51	23	7.51	38
	Resolute Bay	NWTAir	n/a	8.69(a)			
	Montreal	Nordair	n/a	3.78	29		
Spence Bay	Yellowknife	NWTAir	$558	5.82	23	5.82	38
	Edmonton	PW, NWTAir	$752	6.12			

SOURCES: (1) Northwest Territorial Airways, Yellowknife
(2) Pacific Western, Yellowknife
(3) Nordair, Frobisher Bay

NOTES: (a) This is not a regular freight rate but bulk fuel shipping rate.

TABLE 52
ESTIMATED AVERAGE COMMODITY COST, 1984

Commodity	Value	Source and Derivation
Food	$3.71/kg	Estimated by pricing a representative "food basket," discussions with carriers, comparison with other regional studies, and comparison with Seage, 1982 Food Cost Survey.
Lumber and Building Materials	$0.72/kg	This figure is a gross approximation, derived by inflating a 1982 cost of lumber figure (from NWTHC) to a 1984 figure. The wide array of items included in "building materials" prevents a precise determination of cost.
Vehicles and Heavy Machinery	$15.73/kg	Approximated from cost of snowmobiles, three wheelers, and discussions with DPW. As with lumber, this figure is an estimate. For comparative purposes, it is consistent with costs provided in "Keewatin Region Economic Base Study," 1983.
General Merchandise	$2.46/kg	Source: "Keewatin Region Economic Base Study," 1983, inflated to 1984 value.

SECTION THREE: PHYSICAL AND NATURAL RESOURCE PROFILE

Introduction

This section provides an inventory of the natural resources which are readily identifiable within the region. The first section deals with the region's mineral and energy resource base. Both non-renewable and renewable resource energy sources are identified. A comparative summary is provided to indicate the relative resource potential in energy units for those sources which can be fairly exhaustively delineated. The second section addresses major biological resources within the region ranging from soil characteristics to wildlife habitats. Although it was beyond the scope of this study to provide detailed habitats of all species, the inventory does indicate important habitats, nesting areas, migration routes, etc. for major wildlife species. Where available, population estimates have been included based on recent surveys. Finally, the third section addresses other resources (water, aggregate and carving stone) which are of relevance to the regional economy.

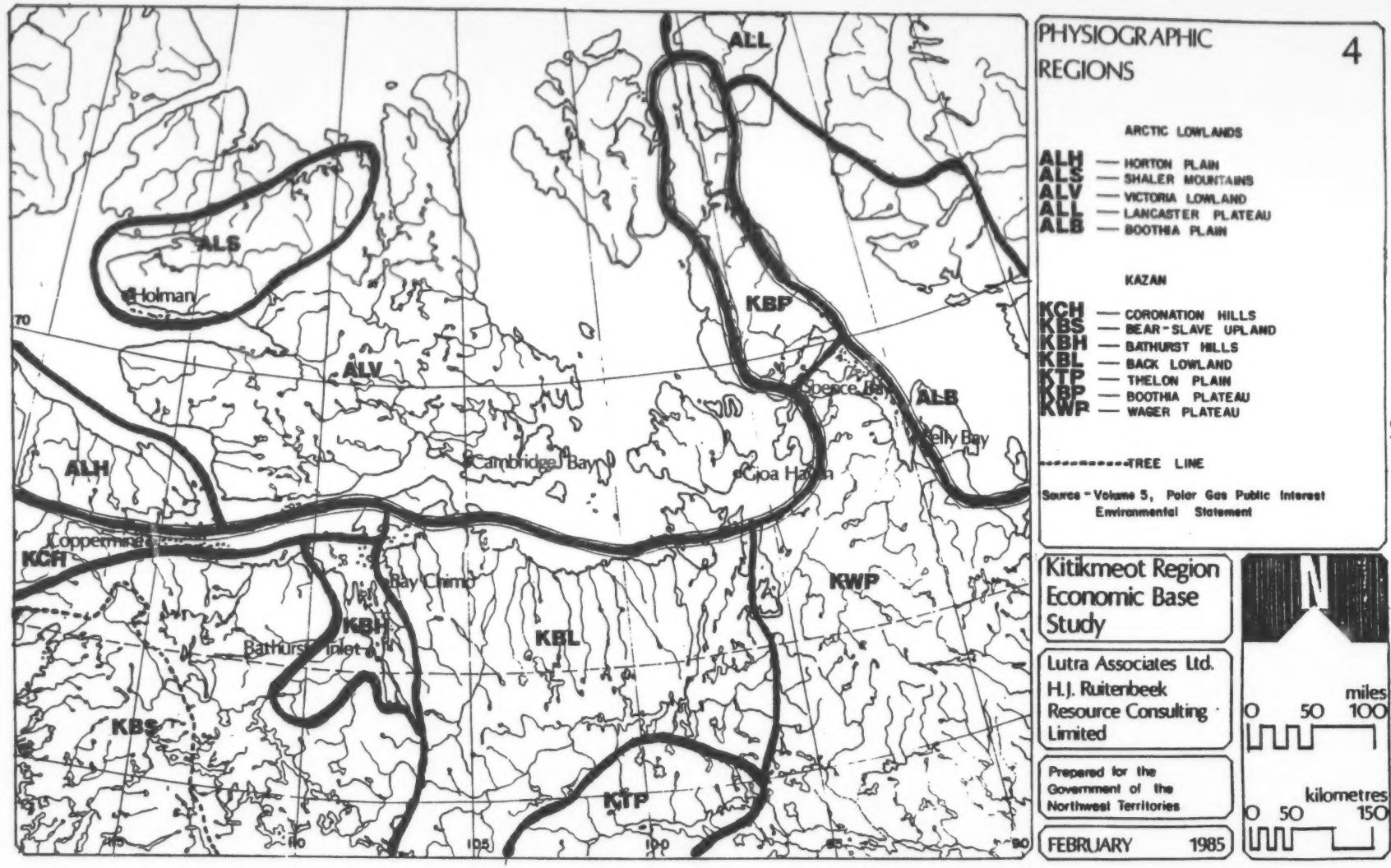
It is important to note that the resource inventory is based upon a thorough review of existing work and studies which have been completed in each of the relevant areas. Hence, where no resources are indicated, this could equally well arise from a paucity of data in particular vicinities. For example, the exploitation of Mackenzie Valley and Arctic Island resource potential has established a number of major corridors through the Northwest Territories. Areas within and adjacent to these corridors have been the subject of intensive field studies, whereas others have been largely neglected. This phenomenon tends to estabish a bias indicating that most of the resource potential is in these areas.

As a central reference map, Figure 4 shows the major physiographic or geologic areas within the region. Also indicated is the treeline and the southernmost extent of continuous permafrost.

Mineral and Energy Resources

Mineral Resources

The purpose of this resource inventory is to enumerate the natural resource potential of the Kitikmeot Region. Although this region does not contain any operating mines numerous excellent prospects of uranium, copper and gold may be developed in the future.



PHYSIOGRAPHIC REGIONS 4

ARCTIC LOWLANDS

ALH — HORTON PLAIN
ALS — SHALER MOUNTAINS
ALV — VICTORIA LOWLAND
ALL — LANCASTER PLATEAU
ALB — BOOTHIA PLAIN

KAZAN

KCH — CORONATION HILLS
KBS — BEAR-SLAVE UPLAND
KBH — BATHURST HILLS
KBL — BACK LOWLAND
KTP — THELON PLAIN
KBP — BOOTHIA PLATEAU
KWP — WAGER PLATEAU

----------TREE LINE

Source - Volume 5, Polar Gas Public Interest Environmental Statement

Kitikmeot Region Economic Base Study

Lutra Associates Ltd.
H.J. Ruitenbeek Resource Consulting Limited

Prepared for the Government of the Northwest Territories

FEBRUARY 1985

N

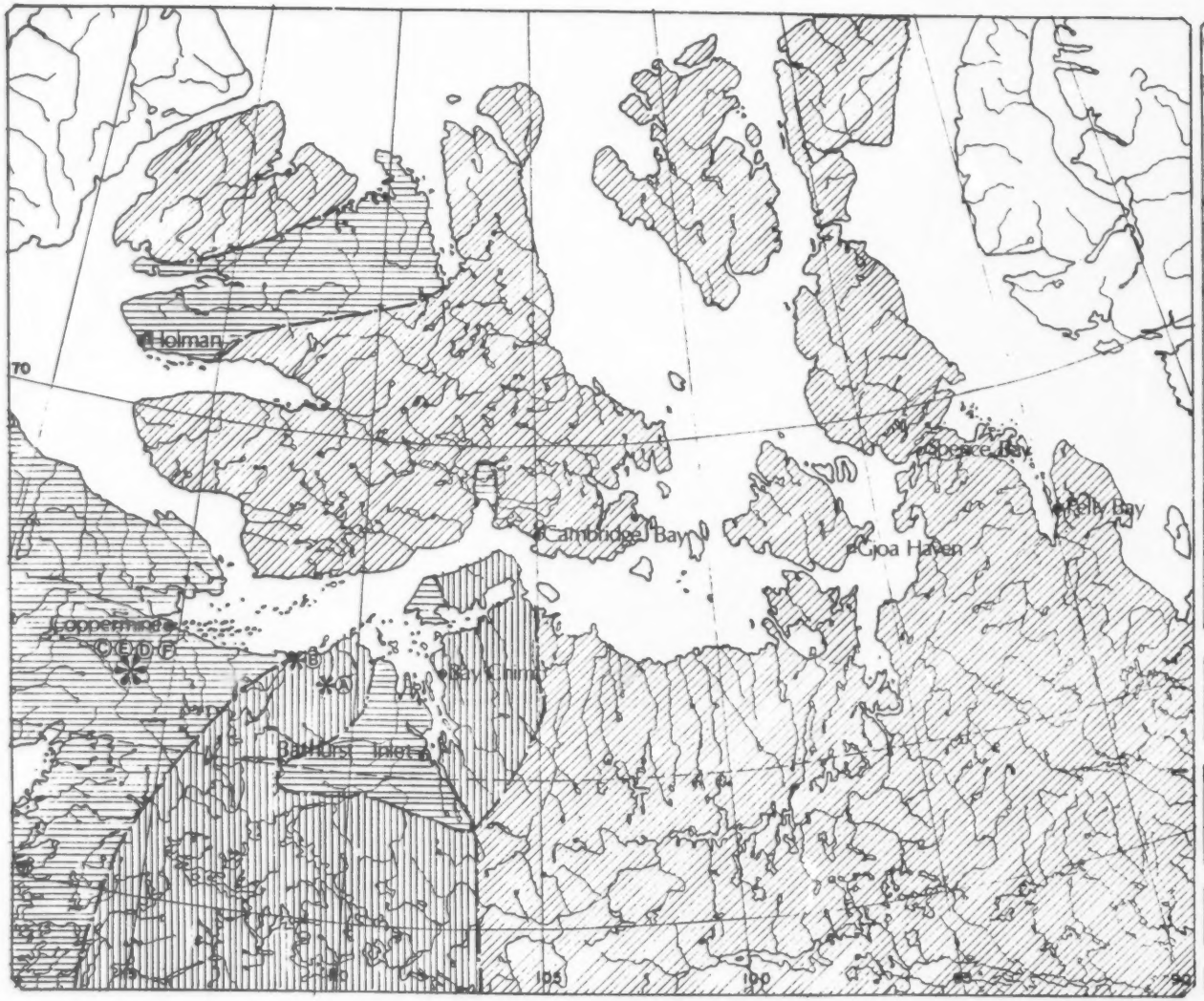
0 50 100 miles

0 50 150 kilometres

TABLE 53
MINERALIZATION SITES

Mineralization	Past Producer	Current Producer	Deposits	Prospect	Occurrence	Total Sites
Antimony [Sb]	0	0	0	0	0	0
Arsenic [As]	0	0	0	0	0	0
Baritum [Ba]	0	0	0	0	0	0
Beryllium [Be]	0	0	0	0	0	0
Bismuth [Bi]	0	0	0	0	0	0
Copper [Cu]	0	0	0	2	268	270
Cobalt [Co]	0	0	0	0	0	0
Gold [Au]	0	0	0	1	51	53
Iron [Fe]	0	0	0	0	11	11
Lead [Pb]	0	0	0	0	3	3
Lithium [Li]	0	0	0	0	0	0
Molybdenum [Mo]	0	0	0	0	1	1
Nickel [Ni]	0	0	0	0	3	3
Silver [Ag]	1	0	0	0	10	11
Tungsten [Wo3]	0	0	0	0	0	0
Uranium [U]	0	0	0	1	3	4

Sources: 1) Mineral Inventory File, Department of Indian and Northern Affairs, Canada
2) Canadian Mineral Deposits not being Mined in 1980, National Mineral Inventory Section, Energy, Mines Resources, Canada
3) Gold Deposits of the Northwest Territories, E.G.S., 1983, W.A. Padgham



GEOLOGICAL PROVINCES & MINING PROSPECTS

5

* PROSPECT ○

- A High Lake (Cu, Zn, Au)
- B Coronation Gulf (Au)
- C Yuk (U)
- D Dick Wen (Cu)
- E Dot No. 47 (Cu)
- F June Gp (Cu)

GEOLOGICAL PROVINCE

- Bear
- Slave
- Arctic Coastal Plain

* SEE TABLES 53 & 54

Kitikmeot Region Economic Base Study

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H.J. Ruitenbeek
Resource Consulting Limited

Prepared for the Government of the Northwest Territories

FEBRUARY 1985

N

miles
0 50 100

kilometres
0 50 150

TABLE 54
MINERAL PROSPECTS

Prospect	Location	Mineralization/Grade
High Lake Kennarctic Exploration Ltd.	76 M 7 67 deg. 23 min. 110 deg. 51 min.	5,206,856 t. at 3.5% Cu, 2.46% Zn and o.023 oz/t. Au
Coronation Gulf Arcadia Expl. Ltd.	76 M 11 67 deg. 45 min 111 deg. 22 min.	Au in large qtz. viens
Yuk Imperial Oil Ltd	Imperial Oil Ltd. 86 N 7 67 deg. 18 min.	Uranium at 0.25% 1000 m x 400 m
Dick Vien Pickle Crow Expls. Ltd.	86 N 8 67 deg. 20 min. 116 deg. 3 min.	90,000 t. at 8.78% Cu
Dot No. 47 Coppermine River Ltd.	86 N 8 67 deg. 24 min. 116 deg. 25 min.	4,162,000 t. 2.96% Cu
June Gp Bernack Coppermine Explorations Ltd.	86 O 11 67 deg. 34 min. 115 deg. 4 min.	1,000,000 t. at 2.5% Cu

SOURCE: See Table 53

The Kitikmeot region is underlain by rocks of 3 different geologic "provinces", Slave, Bear and Arctic Coastal Plain. The Bear province lies north and east of Great Bear Lake. It is underlain by rocks of volcanics and sediments. Copper deposits have been found in the younger sediments. Uranium prospects also occur within sandstones of this region.

The Slave Province lies to the east of the Great Bear Province. It is mainly underlain by granitic rocks and related gneisses, and by the Yellowknife Group of metamorphosed sedimentary strata and lesser amounts of volcanic greenstones. A few gold prospects "Arcadia" may be developed in the future.

The Arctic Coastal Plain lies to the north of the mainland. Sediments underlie most of this area. Oil and gas are present, but other economic mineral deposits are unknown.

The actual classification of minerals for inventory purposes is somewhat arbitrary but the method adopted here is that used within the Canadian Mineral Index. Five catagories of development are established ranging from producing mines to simple occurrences. Deposits are ore bodies that have seen the most recent amount of work and are likely to become producing mines in the near future. Prospects and occurrences may become deposits and producing mines with further development and/or a higher metal price.

Tables 53 and 54 document mineralization sites and mineral prospects in the region. Figure 5 illustrates the location of these sites and prospects. The following abbreviations are applied to the information presented in the above mentioned tables:

(t. - ton, oz/t. - Troy ounces per ton, m - metres, Au - Gold, Zn - Zinc, Cu - Copper)

Coal Resources

Coal resources in the Kitikmeot region are unknown at present. The Arctic Coastal Plain is a large area of sedimentary strata with some oil and gas reserves known. Since oil and gas generally occur with coal bearing strata, reserves should be found as oil exploration expands.

Oil and Gas Resources

Although significant resources of oil and gas have been discovered to the west in the Beaufort Sea and to the north in

TABLE 55

GEOLOGICAL OIL POTENTIAL IN CENTRAL STABLE REGION

TOTAL SEDIMENTARY ROCK VOLUME		1.32 * 10^9	km^3
Land	0.56 * 10^9		km^3
Water	0.76 * 10^9		km^3
Sandstone, Shale, Siltstone	0.32 * 10^9		km^3
Carbonate	0.96 * 10^9		km^3
Evaporite	0.04 * 10^9		km^3
OIL YIELD		~ 200-1000	m^3/km^3
HYDROCARBON RESOURCE POTENTIAL	Oil:	~ 250-1250	million m^3
	Gas:	~ 250-1250	billion m^3

Source: Drummond, H.J. "Canadian Arctic Islands" in THE FUTURE PETROLEUM PROVINCES OF CANADA, R.G. McCrossan, ed., 1973.

the Arctic Islands, hydrocarbon potential in the Kitikmeot region itself is very limited. All of the mainland, the Shaler Mountains and the Boothia Peninsula are exposed precambrian shield which normally acts as the basement for oil and gas deposits. The area depicted physiographically as the Victoria Lowlands in Figure 4 however, harbours modest oil and gas potential.

The 'Central Stable Region' in the Victoria Lowlands consists of three potential areas for oil and gas accumulation: the Victoria Strait Basin, the Wollaston Basin and the Melville Basin. Throughout all of these basins, sediments are primarily low yield Cambrian clastics, Cambrian carbonates and Silurian-Ordivician carbonates ranging in thickness from 1000-1500 metres. No conclusive geophysical evidence supporting oil and gas shows exists in the region. H.J. Drummond finds that there are few indications of hydrocarbon sources such as reefs, faults, up-lift structures, etc. to create traps for oil and gas. Nonetheless, Drummond rates the region as having "fair" potential for low yield resources based on comparisons of the structural and stratigraphic setting with that of better known areas. Table 55 summarizes Drummond's geological estimates. No other disaggregated estimates have been compiled and no definitive estimates of gas/oil mix have been made although typical gas-oil ratios elsewhere have been 1000:1 (which is the basis for the estimate in Table 60).

Hydroelectric Potential

An important renewable resource in the Kitikmeot region is that provided by hydroelectric potential. Currently, most of the electricity in the region which is supplied to the small settlements is generated thermally using imported petroleum products. In addition, some electricity is generated at Cambridge Bay through a horizontal wind turbine. Hydroelectric development offers the opportunity to decrease the dependency on petroleum products and can provide an important export base.

This section enumerates the hydroelectric potential in the region as it has been documented in a number of studies over the last 15 years. The river basins for which data are presented are outlined in Figure 6 and Tables 56 and 57 describe the characteristics of these basins as well as documenting potential small hydro sites (less than approximately 20 MW firm capacity). It should be noted that the inventory provided here is not exhaustive and includes only those areas which have been surveyed. The surveys which have been undertaken were based on reviews of available hydrological, meteorological, topographical and geological data as well as on-site field investigations. Because not all river basins were surveyed, hydroelectric potential has been

TABLE 56

SMALL SCALE HYDROELECTRIC SITES

BASIN	SITE	RESERVOIR STORAGE (billion m3)	NET HEAD (m)	FIRM FLOW (m3/s)	FIRM CAPACITY (MW)	INSTALLED CAPACITY (MW)	FIRM ENERGY (GWh/yr)	SOURCE	COMMENTS
COPPERMINE	1	n/e	9.0	57.2	3.8	n/e	33.3	[1;2]	BLOODY FALLS
	8	1.1	31.7	16.7	4.7	7.8	41.0	[1]	
	9	n/e	8.8	11.1	0.8	1.4	7.0	[1]	
	10	n/e	20.1	13.9	2.5	4.1	22.0	[1]	
HOOD	5	0.8	47.0	26.0	11.0	18.0	96.4	[3]	
BACK	15	0.5	48.0	32.0	13.7	46.0	120.0	[3]	
	74	1.5	11.2	90.0	8.7	20.0	76.0	[3]	
	140	0.7	16.0	51.0	7.2	31.0	6.3	[3]	
	141	14.5	4.0	308.0	10.8	22.0	95.0	[3]	
KUGAJUG	212	n/e	6.0	4.2	0.251	n/e	2.2	[2]	
TOTALS:					63.5	150.3	499.2		

NOTES: n/e: no estimate

SOURCES:

1) T. INGLEDOW AND ASSOCIATES LTD., POWER SURVEY OF THE CENTRAL MACKENZIE DISTRICT, N.W.T., 2 VOLUMES, JANUARY, 1969.
2) SCHILDER, V. PRELIMINARY FIELD INVESTIGATIONS OF HYDRO POTENTIAL DAM SITES ON THE ROOT, REDSTONE, KEELE, MOUNTAIN, CARCAJOU, ARCTIC RED AND PEEL RIVERS, JUNE, 1973
3) UMA GROUP, POWER SITE SURVEY N.W.T. FOR THE BURNSIDE, HOOD, CAMSELL, BACK AND HAYES RIVERS, MARCH, 1979.

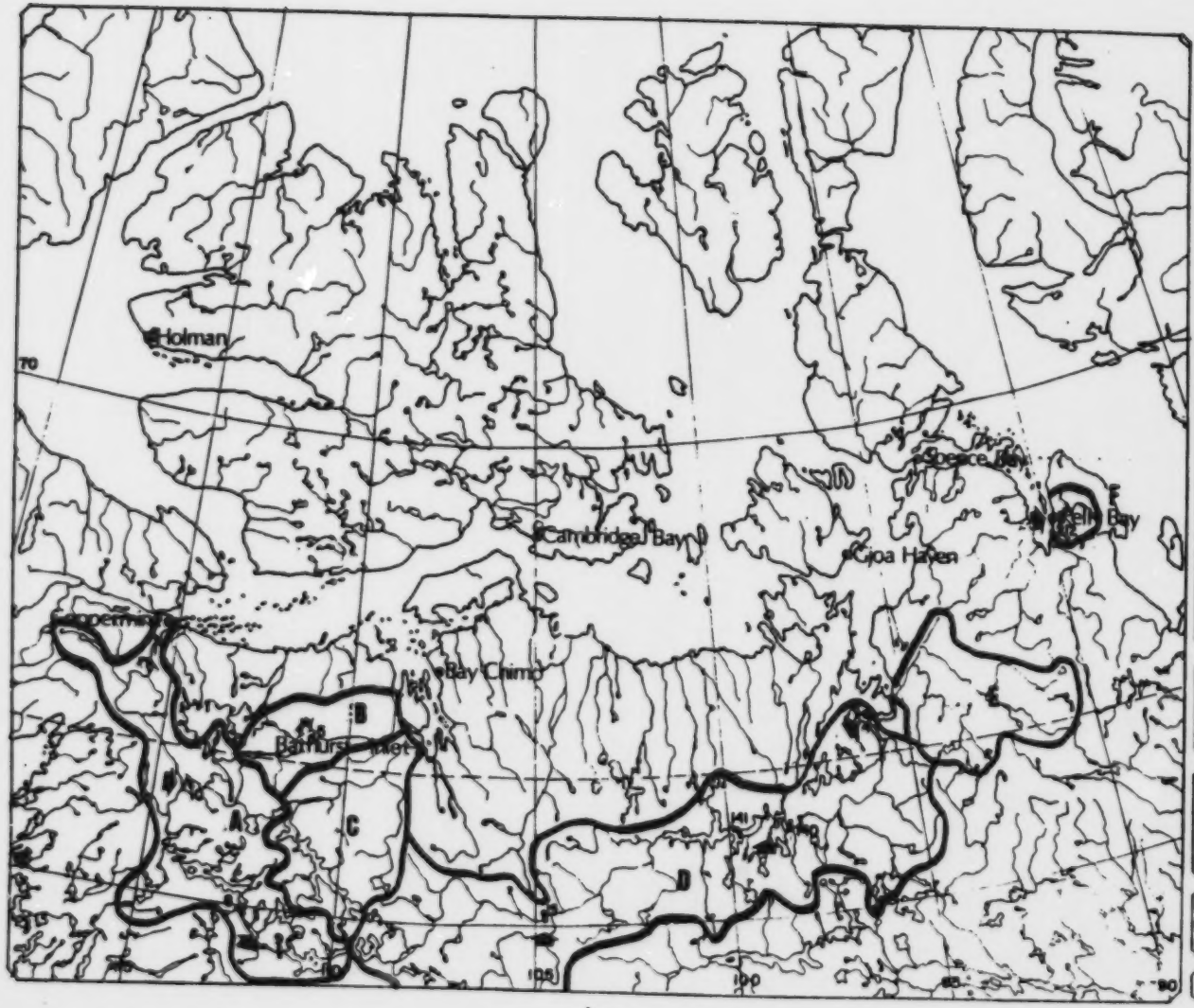
TABLE 57

RIVER BASIN HYDROELECTRIC POTENTIAL

BASIN	EFFECTIVE BASIN AREA (km2)	FIRM FLOW (m3/s)	FIRM CAPACITY (MW)	ENERGY CAPABILITY (GWh/yr)	SMALL SCALE SITES	SOURCE	COMMENTS
A. COPPERMINE	60,000	92.0	187.0	1,630	1,8,9,10	[1]	
B. HOOD	10,900	49.0	52.0	456	5	[3]	
C. BURNSIDE	27,100	130.0	261.0	2,286	-	[3]	
D. BACK	110,740	546.0	681.0	5,966	15,74,140/1	[3]	Excludes diversions
E. HAYES	21,480	120.0	151.0	1,323	-	[3]	
F. KUGAJUC	2,000	<4.0	n/e	n/e	212	[2]	
TOTALS:			1332.0	11,660			

NOTES: n/e: no estimate

SOURCES:
1) T. INGLEDOW AND ASSOCIATES LTD., POWER SURVEY OF THE CENTRAL MACKENZIE DISTRICT, N.W.T., 2 VOLUMES, JANUARY, 1969.
2) SCHILDER, V. PRELIMINARY FIELD INVESTIGATIONS OF HYDRO POTENTIAL DAM SITES ON THE ROOT, REDSTONE, KEELE, MOUNTAIN, CARCAJOU, ARCTIC RED AND PEEL RIVERS, JUNE, 1973
3) UMA GROUP, POWER SITE SURVEY N.W.T. FOR THE BURNSIDE, HOOD, CAMSELL, BACK AND HAYES RIVERS, MARCH, 1979.



RIVER BASINS AND SMALL SCALE HYDROELECTRIC SITES

6

SMALL SCALE HYDROELECTRIC SITE

RIVER BASINS

- A Coppermine River
- B Hood River
- C Burnside River
- D Back River
- E Hayes River
- F Kugaluk River

* SEE TABLE 56.

NOTE - Those river basins not highlighted fall outside of this study region or were not surveyed in the literature.

Kitikmeot Region Economic Base Study

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Prepared for the Government of the Northwest Territories

FEBRUARY 1985

N

0 50 100 miles

0 50 150 kilometres

understated through this process. On the other hand, it should be realized that the surveys were all pre-feasibility surveys and did not consider the environmental and economic feasibility of developing a number of these sites. For example, considerable hydroelectric potential can be harnessed through developing the Back River, as indicated in Table 57. Such development is not, however likely to occur in the foreseeable future because of both environmental and market constraints.

In addition to the above caveats, caution must be used in interpreting the results of these surveys. For example, the energy potential for single stand-alone developments is not necessarily additive since development of one site can affect (detrimentally or beneficially) power output at another.

For each of the basins enumerated, data summarizing important hydrological and power data are provided in Table 57. The effective drainage area and the firm flow rate are assumed to represent those for a 'fully-developed' river basin. Firm flow represents a minimum water flow which will occur at all times of the year. It can be enhanced through increasing storage capacity through diversions or control structures in any river basin. In conjunction with the hydraulic head, this firm flow can generate a theoretical amount of power at all times through the year, represented by 'firm capacity'. This can be converted to an annual energy capability assuming that no power beyond this point is developed.

A number of comments should be made regarding the particular assumptions in documenting the survey results. First, it should be noted that the development of the Back River has been assumed to occur without any enhancements from adjacent river basins. Through constructing diversion structures in the Burnside River Basin and/or the Lockhart River Basin (in the Fort Smith Region), the Back River potential can be almost doubled. Similarily, some enhancement of the Coppermine River Basin is feasible through diversions from the Camsell Basin which normally drains into Great Bear Lake. The major obstruction to development in the region is the lack of local markets. It should therefore be noted that major power developments are not likely to occur until capacity further south has been fully developed.

The most promising possibility would appear to be developing small-scale run-of-river sites, such as those small-scale sites enumerated in Table 56. These are potentially appropriate low-head, low power projects for those communities close to the indicated areas. Perhaps the most promising site is that surveyed at Bloody Falls on the Coppermine River, which could adequately contribute to the electrical requirements of Coppermine.

Non-conventional Energy Resource Potential

Fossil fuels in the Northwest Territories have traditionally been the largest supplier of every region's energy requirements. Because of the cost of these fuels however, it has often been suggested that opportunities exist for developing alternative resources. Specifically, this inventory investigated the occurrence of possible peat, solar, wind, wood and geothermal potential.

Literature reviews indicate that with the exception of the area west of Coppermine extending to Paulatuk, no peatland surveys have been undertaken in the Kitikmeot region. The area to the west of Coppermine was found to contain peat distributions of less than 5% (by area) and peat was hence dismissed as containing any significant energy potential. Similarly, no record of natural geothermal sources exist although, in potential, hot water aquifiers could be accessed almost anywhere in the world if one were to drill to a sufficient depth. Finally, as the entire region is north of the treeline, the potential energy from indigenous wood supplies is nil.

The only possible alternate energy sources available in the Kitikmeot region are hence solar and wind energy. In an effort to provide an estimate of incident solar radiation, a series of measuring stations were established. Data from a number of these sites are presented in Table 58. The results indicate that a solar collector of 1 m2 lying flat on the ground collects over a year, an average of about 9 MJ of energy daily. Some 19 different orientations were investigated which indicated that maximum annual energy could be obtained by orienting the collecting panel at a 60 degree tilt from the horizontal. With such a configuration, average daily energy incidence is 13 MJ/m2. To put this into perspective, over one year, the incident energy corresponds to about 5 GJ, which is just less than the energy content of 1 barrel of diesel fuel. Even with large collectors, however, load factor and storage constraints (ie. most of the energy is collected in the summer and required in the winter) preclude the development of solar energy at such latitudes.

Of the non-conventional energy resources in the Kitikmeot region, wind energy is perhaps the most promising. As an illustration Figure 7 shows the wind energy potential in January which is one of the windiest months in the central part of the region. Also, Table 59 indicates the annual distribution of potential wind energy at four sites within or near the region.

Development potential of the wind resources has been demonstrated in Cambridge Bay by a horizontal wind turbine owned by Fred Ross &

TABLE 58

SOLAR ENERGY*
(MJ/m2)

	CAMBRIDGE BAY		HALL BEACH	
Latitude (N)	69°06'N		68°47'N	
Longitude (W)	105°07'W		81°15'W	
Configuration**	A	B	A	B
JANUARY	0.075	0.364	0.098	0.476
FEBRUARY	1.962	9.946	2.015	9.673
MARCH	8.233	22.469	8.052	20.801
APRIL	16.724	27.954	17.006	27.535
MAY	21.958	25.555	21.059	24.433
JUNE	20.928	20.079	21.824	21.090
JULY	19.137	18.893	18.587	18.439
AUGUST	11.033	12.525	13.078	16.058
SEPTEMBER	6.022	9.539	6.036	9.462
OCTOBER	2.541	7.205	2.606	7.310
NOVEMBER	0.353	2.080	0.405	2.286
DECEMBER	0.0	0.0	0.0	0.0
ANNUAL	9.171	13.073	9.310	13.208

NOTES:

* Mean daily global solar radiation on a sloped surface.

** Configuration: A: Tilt= 0°; Azimuth= 0°
B: Tilt=60°; Azimuth=180°
Configuration B represents maximum energy

SOURCE: Canadian Climate Centre, Atmospheric Environment Service, Environment Canada, "Solar Radiation Data Summaries".

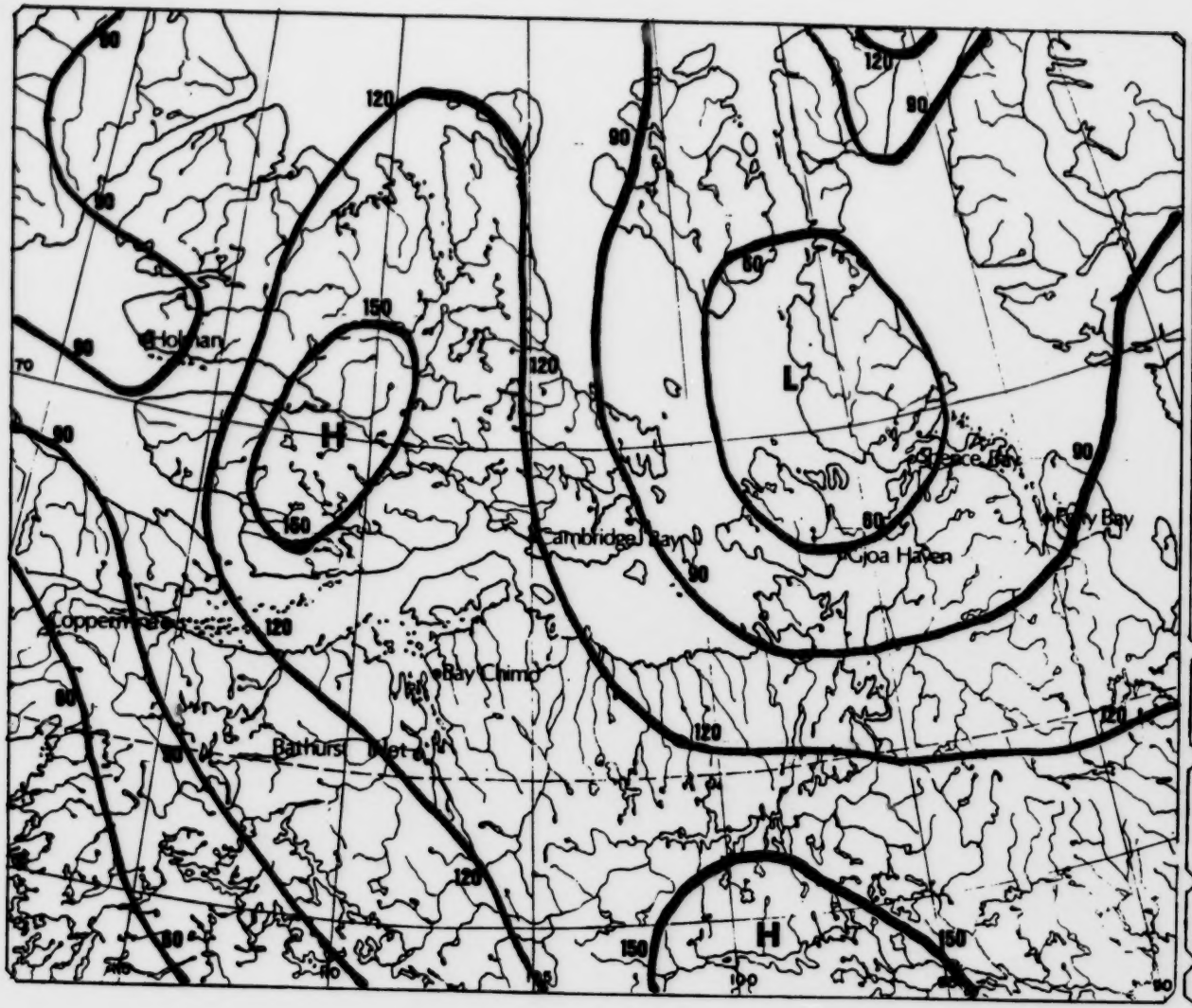
TABLE 59

POTENTIAL WIND ENERGY

STATION	CAMBRIDGE BAY	CONTWOYTO LAKE	COPPERMINE	HALL BEACH
LATITUDE (N)	69°06'	65°29'	67°50'	68°47'
LONGITUDE (W)	105°07'	110°22'	115°07'	81°15'
ENERGY (MJ/m2):*				
JANUARY	764.6	396.4	430.2	572.2
FEBRUARY	590.1	267.7	252.1	628.4
MARCH	574.8	299.3	266.1	649.9
APRIL	515.6	234.6	169.3	471.3
MAY	522.7	294.0	189.4	490.2
JUNE	482.3	194.7	116.1	312.9
JULY	450.3	172.5	140.5	258.0
AUGUST	554.4	328.2	215.1	365.2
SEPTEMBER	831.5	493.6	274.4	725.9
OCTOBER	863.5	559.0	364.8	905.5
NOVEMBER	608.2	280.1	299.0	718.2
DECEMBER	578.5	289.2	275.7	499.5
ANNUAL (MJ/m2)	7336.5	3809.4	2992.7	6597.3
MEAN SPEED (km/h)	23.2	17.9	16.5	22.8
MAXIMUM SPEED (km/h)	101	105	87	106
DURATION (hours)	1	1	1	1

*Average over Period January 1967 - December 1976

SOURCE: Janz, B. et.al., Wind Energy in the NWT, Science Advisory Board, 1982.


WIND ENERGY
7
MEAN JANUARY WIND ENERGY POTENTIAL
(kWh/m² at 10m for winds 10-58 km/h)
NOTE - See TABLE 59 for site specific data.
Source - Jonz, B., et al, Wind Energy in the Northwest Territories, Science Advisory Board, 1982.
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H.J. Ruitenbeek Resource Consulting Limited
Prepared for the Government of the Northwest Territories
FEBRUARY 1985
N
miles
0 50 100
kilometres
0 50 150
Holman
Cambridge Bay
Cjoa Haven
Spence Bay
Bay Chimo
Bathurst Inlet
H
L
H
120
90
150
60

Associates. The windmill was used to provide power for a company garage and warehouse. The turbine has been operated successfully for 2 years and for a 7 month monitored period ending in 1984, a total of approximately 10,000 KWH of electricity was generated.

Energy Resource Summary

Energy resources can be divided into two categories: renewable and non-renewables. The energy potential of renewables including hydro-electric, wood, wind and solar is expressed in annual flows. The potential of non-renewables is expressed more readily as a store or stock of energy. Table 60 summarizes the energy potential of renewables in terms of constant annual flow and non-renewables as total stocks. In most cases these estimates represent ultimate potential, abstracting from technical, economic and environmental constraints.

BIOLOGICAL RESOURCES

Agricultural and Forestry Resources

The purpose of the agricultural and forestry resource inventory is to indicate the natural produce and livestock potential of the Kitikmeot Region. The agricultural potential of the region is extremely poor because of the short growing season, the extreme cold climate, limited precipitation and inappropriate soils. Tables 61 and 62 indicate climactic and soil types in the region.

The forestry potential for the region is non-existent because the entire region is above the treeline. Table 63 provides a review of community plant structures associated with terrain in the Arctic Lowland and Shaler Mountain areas of the region.

Wildlife

Important wildlife resources of the region include marine mammals, terrestrial wildlife, and avafauna (migratory waterfowl, and raptors). Major species of terrestrial wildlife are covered by Figures 8 to 11 indicating range, population and harvest data. Key migratory bird terrestrial habitat sites are outlined in Figure 10. With respect to marine mammals specific site surveys are described in terms of location, population estimates and utilization, Table 64.

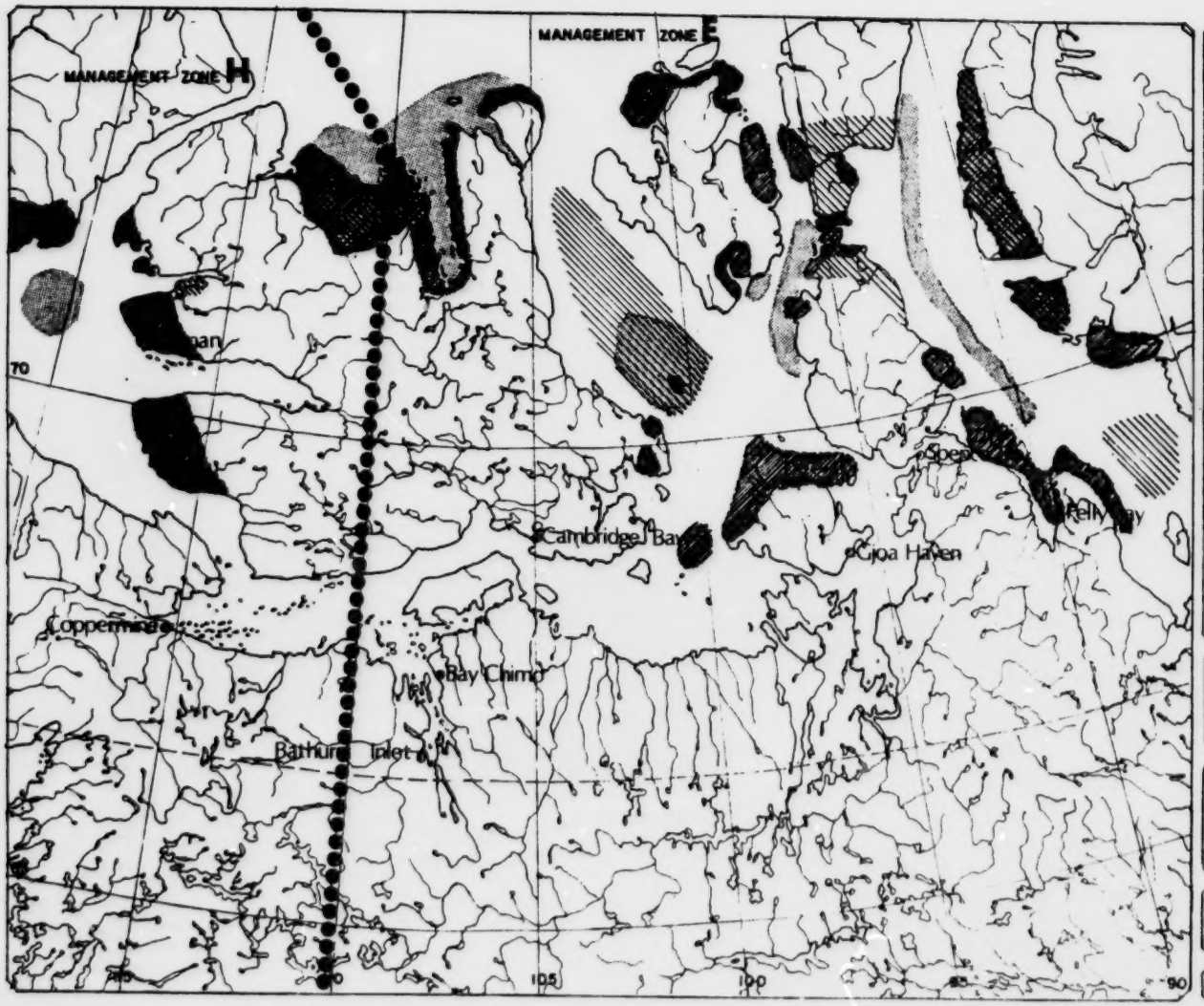
Research and enforcement of regulations regarding major wildlife species in the region is conducted by Renewable Resource officers of the Government of the Northwest Territories. Officers are located in most Kitikmeot communities and are further responsible for enforcement of regulations regarding marine mammals, and

TABLE 60

SUMMARY OF ENERGY POTENTIAL BY SOURCE

Renewables ($x10^6$ GJ/yr)	
Hydro-electric	41.98
Wood	negl.
Geo-thermal	negl.
Wind	n.a.
Solar	n.a.
Non-renewables ($x10^6$ GJ)	
Oil	10,000-50,000
Natural Gas	10,000-50,000
Coal	negl.
Peat	negl.
Estimated Annual Consumption (10^6 GJ/yr)	0.521 [1]

SOURCE: [1] Based on estimates by Science Advisory Board, Energy in the Northwest Territories, 1981.



POLAR BEAR 8

Known Winter Concentration Areas
Known or Suspected Denning Areas
Known or Suspected Summer Retreat

POLAR BEAR HARVEST

	1982 - 83			1981 - 82	
	Total Quota	Total Kill	Sport Kill	Total Kill	Sport Kill
Coppermine	6	6	0	2	0
Gjoa Haven	14	14	0	14	0
Holman	20	19	4	16	2
Pelly Bay	15	13	0	15	0
Spence Bay	27	27	0	27	0
Cambridge Bay	15	15	0	14	0

Source - Department of Renewable Resources, G.N.W.T.

NOTE: Polar Bear occurrence in all coastal areas.

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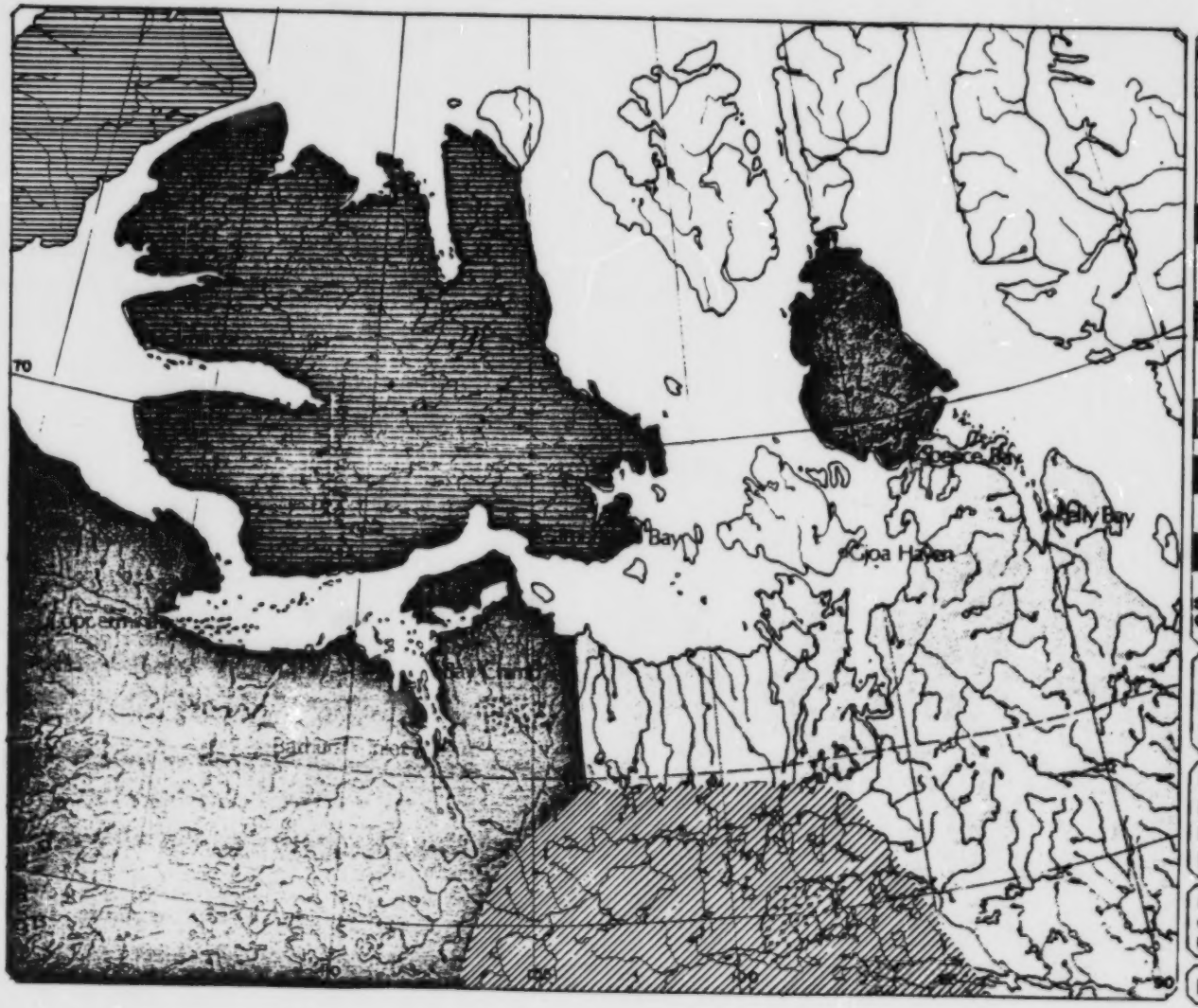
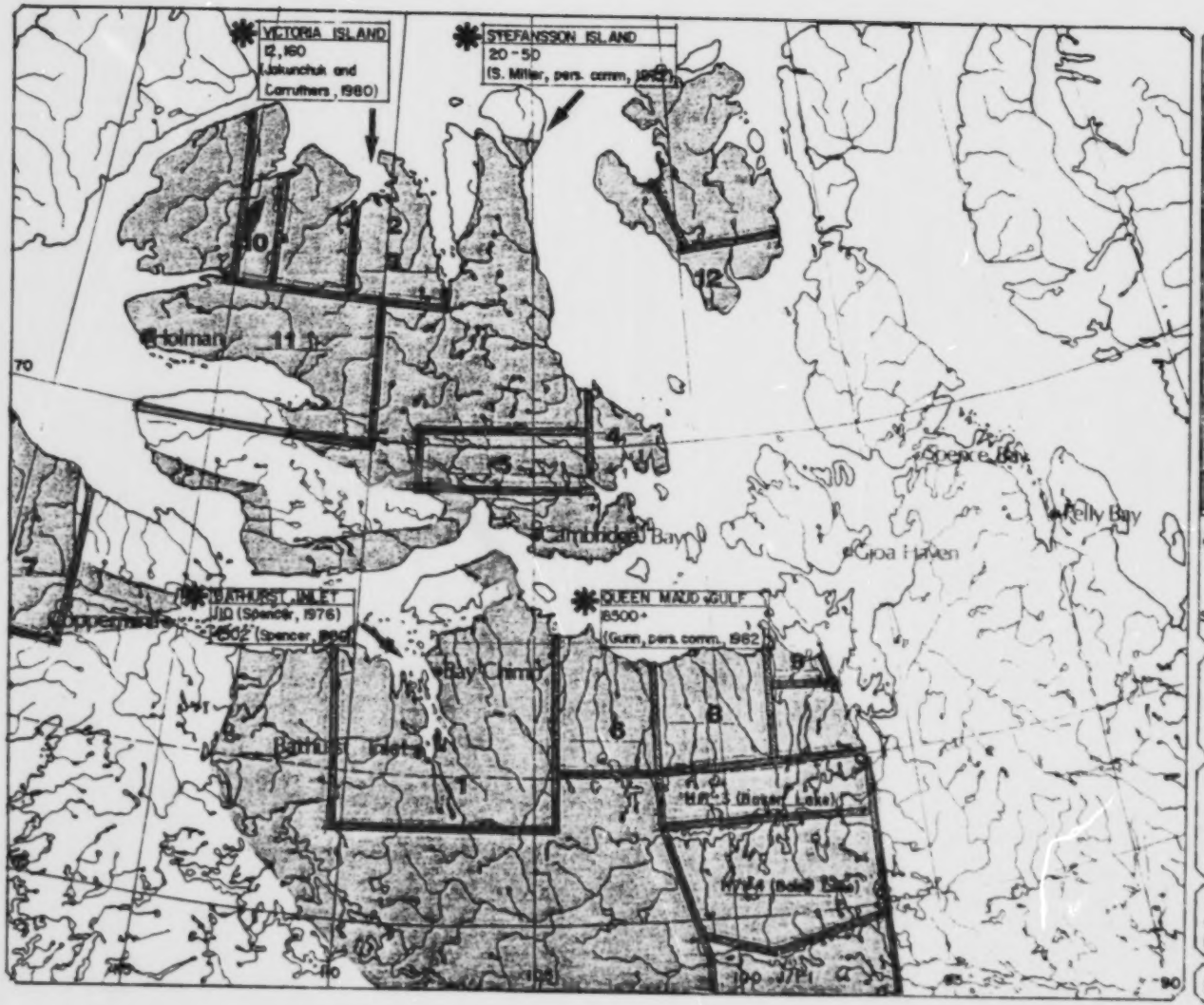
N

0 50 100 miles

0 50 150 kilometres


70
Spence Bay
Bay
Cjoa Haven
Gjoa Haven
Peel
Bay
Cambridge Bay
Victoria Island
Victoria Island
Victoria Island



MUSKOX 10

Map Key	Management Zone	Community	1984 Quota	1982-83 Quota	1982-83 Kill	1981-82 Quota	1981-82 Kill
1	F/1-1	Bathurst Inlet/ Bay Chimo	10	5	1	5	1
2	B/2-1	Coppermine	5	*	*	*	*
3	B/2-1	Cambridge	*	8	*	8	2
4	B/2-4	Cambridge	5	5	5	5	5
5	B/2-5	Cambridge	*	8	8	8	2
6	F/1-2	Cambridge	*	15	4	15	1
7	C/1-2	Coppermine	40	18	17	18	17
8	H/1-1	Gjoa Haven/ Cambridge	65	11	14	11	3
9	H/1-2	Gjoa Haven	10	7		7	5
10	B/2-2	Holman	110	35	35	35	
11	B/2-3	Holman/ Cambridge	30	75		75	
12	B/3-1	Spence Bay	3	3	0	3	0

Data not available *

AREAS OF MUSKOX OCCURRENCE (based on sightings from surveys 1974 - 80)

POPULATION STATUS (on map)

Source - Department of Renewable Resources, GNWT.

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N

miles 0 50 100

kilometres 0 50 150

TABLE 61

CLIMATOLOGICAL DATA

STATION	MEAN DATE OF LAST FROST	MEAN DATE OF FIRST FROST	MEAN FROST-FREE SEASON (DAYS)	JANUARY MEAN DAILY MINIMUM T. (°C)	JULY MEAN DAILY MAXIMUM T. (°C)	ANNUAL ESTIMATED PRECIP. (mm)
Cambridge B.	JUN 25	AUG 20	55	-37	12	136
Holman Is.	JUL 10	JUL 30	20	-33	10	178
Coppermine	JUN 25	AUG 20	55	-33	13	202
Bathurst In.	JUN 30	AUG 20	50	-35	13	108
Spence Bay	JUN 30	AUG 20	50	-29	11	181

SOURCES:
1) Hydro-Carbon Development in the Beaufort Sea Mackenzie Delta Region, Environmental Impact Statement, Volume 3C, 1982
2) Polar Gas, Public Interest: Environmental Statement, Volume 5, Presentation to NEB and DIAND.
3) Canadian Arctic Gas Pipeline Limited, Arctic Gas: Environmental Statement, Presentation to NEB and DIAND.
4) Environment Canada, Canadian Climate Normals, 1951-1980, Yukon and NorthwestTerritories, 1982

TABLE 62

SOIL DISTRIBUTION

TERRAIN TYPE	SOIL CLASSIFICATION	SURFACE TEXTURE	AREAL EXTENT* ARCTIC MAINLAND	BOOTHIA PLATEAU	ARCTIC ISLANDS
Bedrock	Brunisols, Regosols	Stony, sandy, silty loams	30%	65%	5%
Moraine	Brunosolic and Regosolic Turbic Cryosols	Stony, sandy and silty loams; rocks	55%	30%	30%
Glaciofluvial (eskers, kames, deltas, outwash)	Regosolic and Brunosolic Static Cryosols	Sands, gravels, cobbles	7%	5%	10%
Glaciomarine-lacustrine (ponded basins, plains, terraces, beaches)	Regosolic and Brunosolic Cryosols	Sands, gravels, cobbles	7%	1%	54%
Alluvial	Brunosolic and Regosolic Static Cryosols	Sand, stony sand, and gravel	1%	1%	1%
Aeolian	Regosolic Static Cryosols	Fine sand	1%	1%	1%
Organic	Organo Cryosols	Organic	-	-	-

* NOTE: May not add to 100% because of rounding.

SOURCES:
1) Hydro-Carbon Development in the Beaufort Sea Mackenzie Delta Region, Environmental Impact Statement, Volume 3A.
2) Polar Gas, Public Interest: Environmental Statement, Volume 5, Terrestrial Setting, Presentation to NEB and DIAND.

TABLE 63
VEGETATION TYPES

Region	Terrain	Community Structure
Arctic Lowlands Shaler Mountains	Ground, drumlinized, humaocky and ridged morain; nearshore and offshore marine plains and raised beach ridges; glaciofluvial outwash plains and deltas; and bedrock dominated landforms.	Dryas intergrifolia dominant, other species include salix arctica, salix alaxensis and carex aquatilis. Moss cover and lichens.

Source 1) Terrain and Vegetation along the Victoria Island Portion of a Polar Gas Combined Pipeline System, E.B.Peterson, R.D. Dabzems and V.M. Levson, Western Ecological Services (British Columbia) Ltd., April 1981.

migratory birds. A Department of Renewable Resource regional biologist is resident in Cambridge Bay. Hunters' and Trappers' Associations are located in all communities except for Bay Chimo/Bathurst Inlet. The Hunters' and Trappers' Associations deal with local concerns regarding the use of terrestrial wildlife, marine mammals and migratory birds/raptors.

Migratory Waterfowl and Raptors

Avafauna (waterfowl, and shorebirds) are for the most part reviewed in Table 64. Raptors (peregrine and gyrfalcons) are indigenous to the region. In recent years interest in the commercial exploitation of gyrfalcons has generated a need for more information on status and population. 1982 raptor surveys conducted by the Department of Renewable Resources, Government of the Northwest Territories demonstrate numbers of known sites active in 1982 at 10 for Cambridge Bay, and 4 - Spence Bay, 1 - Pelly Bay. The density of active gyrfalcon territories is estimated to average 1/584 square km over the region.

Marine Mammals

The use of ringed seal in the Kitikmeot region has been significant as a source of food and for economic purposes. Fur export tax returns have been used as an indicator of the harvest. The returns are known to represent an unknown fraction of the total harvest. Ringed seal are widely disbursed in Canada's Arctic waters. Table 65 provides a community-by-community review of ringed seal harvest data. These returns underestimate the actual harvest due to retention of pelts for domestic use, incomplete reporting from settlements, use of pelts for handicrafts and pelts damaged and not traded. The estimated population of ringed seal in the Canadian Beaufort Sea was 41,983 $\pm$ 8,152, 1974 and 21,661 $\pm$ 4,919, 1975 (Stirling 1975 & 1977).

The Beluga or White Whale occupy a discontinuous circumpolar range. Data regarding population and range is site specific and does not serve to provide a regional perspective. The known range for belugas include the Amundsen Gulf and Dolphin and Union Straits west and south of Victoria Island. Estimated numbers of belugas observed at various locations are 4,000-6,000 in the Beaufort Sea (Fraker, 1977, Sergeant and Hoek 1974). Regarding utilization, mature belugas weigh from 540-765 kg. Approximately 60% of this weight is considered potentially edible (Brakel 1977), while muktuk comprising 18% of the body weight is often the only product used.

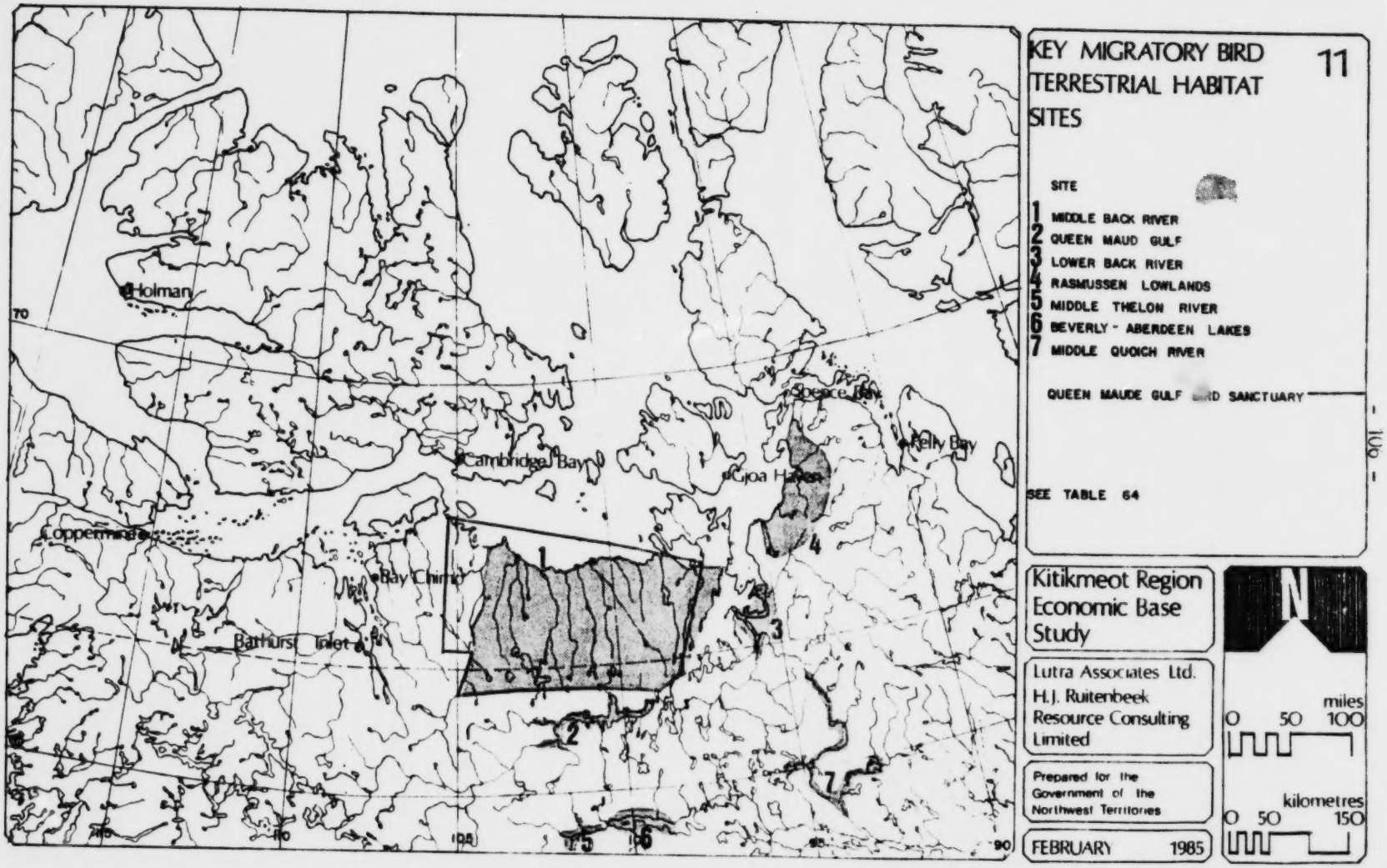
The narwhal ranges into the eastern section of the region at

TABLE 64
MIGRATORY BIRD POPULATION ESTIMATES

SPECIES	POPULATION ESTIMATES CANADA	N.W.T.	BREEDING DISTRIBUTION REGION*	COMMENTS
Tundra Swan	69,000	69,000	Inuvik/Kitikmeot	Individual birds in spring
	79,000	79,000		Individual birds in fall
Trumpeter Swan	120	18	Fort Smith	Estimated breeding pairs
Brant	129,000	129,000	Inuvik,Kitikmeot	Individual birds in spring
Canada Goose	1,113,000	not reliable data	Inuvik,Fort Smith Kitikmeot	Individual birds
White-fronted Goose	90,000	90,000	Inuvik,Kitikmeot	Individual birds in spring
	120,000	120,000		Individual birds in fall
Ross' Goose	50,000	50,000	Kitikmeot	Breeding pairs
Whooping Cranes	23	23	Fort Smith	Breeding pairs. Endangered species.
	70	70		Individual birds
Eskimo Curlew	20	20	Inuvik	Breeding pairs.Endangered species.
Thick-billed Murre	800	800	Inuvik	Sub-species arra. Individual birds.
	1,283,000	1,271,000	Inuvik	Sub-species lomvia.Breeding pairs.

NOTES: *Breeding distributions are noted by their occurrence in each of the Kitikmeot, Inuvik and Fort Smith regions. The occurrences do not preclude the Baffin,Arctic Islands and Keewatin regions.

SOURCE: Canadian Wildlife Services, Key Migratory Bird Terrestrial Habitat Sites in the Northwest Territories, Technical Report No. 84-6, 1984


KEY MIGRATORY BIRD TERRESTRIAL HABITAT SITES
11
SITE
1 MIDDLE BACK RIVER
2 QUEEN MAUD GULF
3 LOWER BACK RIVER
4 RASMUSSEN LOWLANDS
5 MIDDLE THELON RIVER
6 BEVERLY - ABERDEEN LAKES
7 MIDDLE QUOICH RIVER
QUEEN MAUDE GULF BIRD SANCTUARY
SEE TABLE 64
Holman
Cambridge Bay
Spence Bay
Kelly Bay
Coppermine
Bay Chimo
Bathurst Inlet
70
110
105
95
90
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N
miles
0 50 100
kilometres
0 50 150

TABLE 65
FUR EXPORT TAX RETURNS/HARVEST OF RINGED SEAL

Location	1975	1976	1981/82	1982/83	1983/84
Bathurst Inlet	-	105	-	31	3
Cambridge Bay	105	126	471	22	22
Coppermine	1869	2279	791	893	354
Gjoa Haven	375	140	4	5	15
Pelly Bay	835	683	50	-	15
Spence Bay	496	117	374	196	68

SOURCE: Dept. of Renewable Resources, G.N.W.T.

Pelly Bay, Spence Bay and Gjoa Haven. There are too few data on narwhals to make reliable statements about population. Economic value has been attached to trade of the tusk, while the muktuk has been a valuable food source for local people.

Terrestrial Mammals

Although the major species have been mapped in Figures 8 to 10 ie. Caribou, Muskox and Polar Bear, furbearers are important to the local economies in the Kitikmeot region. The prominent furbearers in the region are white fox and wolf. The distribution and range of these furbearers is throughout the region with each community showing fur exports (see Table 65).

Resident hunter harvest estimates represent a portion of the total harvest of game birds and animals. In 1981/82, 41 barren-ground caribou and 537 ptarmigan were taken by resident sport hunters while in 1982/83, 55 barren-ground caribou, 1 moose, 1 wolf and 363 ptarmigan were harvested by resident hunters.

Fisheries

The fishery resource in the Kitikmeot Region is comprised of a variety of fish utilized in domestic, commercial and sport fishing. Major species in the region are Arctic Char, Lake Trout, Whitefish, Arctic Grayling and Northern Pike. The sport fishery utilizes Arctic Char as its major attraction to sport fishing sites in the region. The Tree River which empties into the Coronation Gulf east of Coppermine, the Back River at Chantrey Inlet and lakes on Victoria Island in close proximity to Holman Island and Cambridge are popular sport fishing locations for Arctic Char. Arctic Char are landlocked in lakes near Cambridge Bay but generally are caught during the summer migration in rivers as they move back and forth to the sea. Minto Inlet north of Holman Island and Bathurst Inlet are noted for their Arctic Char sport fishery.

Domestic fishing is conducted by local people in all Kitikmeot region communities as a major source of country food. Arctic char is the commonly used resource. Domestic fishing occurs in all seasons.

Commercial fishing in the Kitikmeot region is of major economic import to Cambridge Bay. The Ikaluktutiak Eskimo Co-operative Ltd. in Cambridge harvests most of the arctic char in the region (see Table 53). The bulk of this fish is exported for resale in other Arctic Co-ops or for markets in the south. The Freshwater Fish Marketing Corporation is the marketing agency for all freshwater fish sold outside of the N.W.T. Commerial fishing operations also take place at Gjoa Haven, Spence Bay and Pelly Bay.

Other Resources

Water Resources

A number of the Kitikmeot region's water resources have been enumerated earlier in the discussion concerning hydroelectric potential. Parallel to this however, water is also an important resource for its quality uses. Quality uses reflect the need for water having certain chemical or physical characteristics such as acceptable standards for drinking or certain concentrations of salt for fish packing. Also, the navigability of waterways as a function of ice build-up can be of relevance.

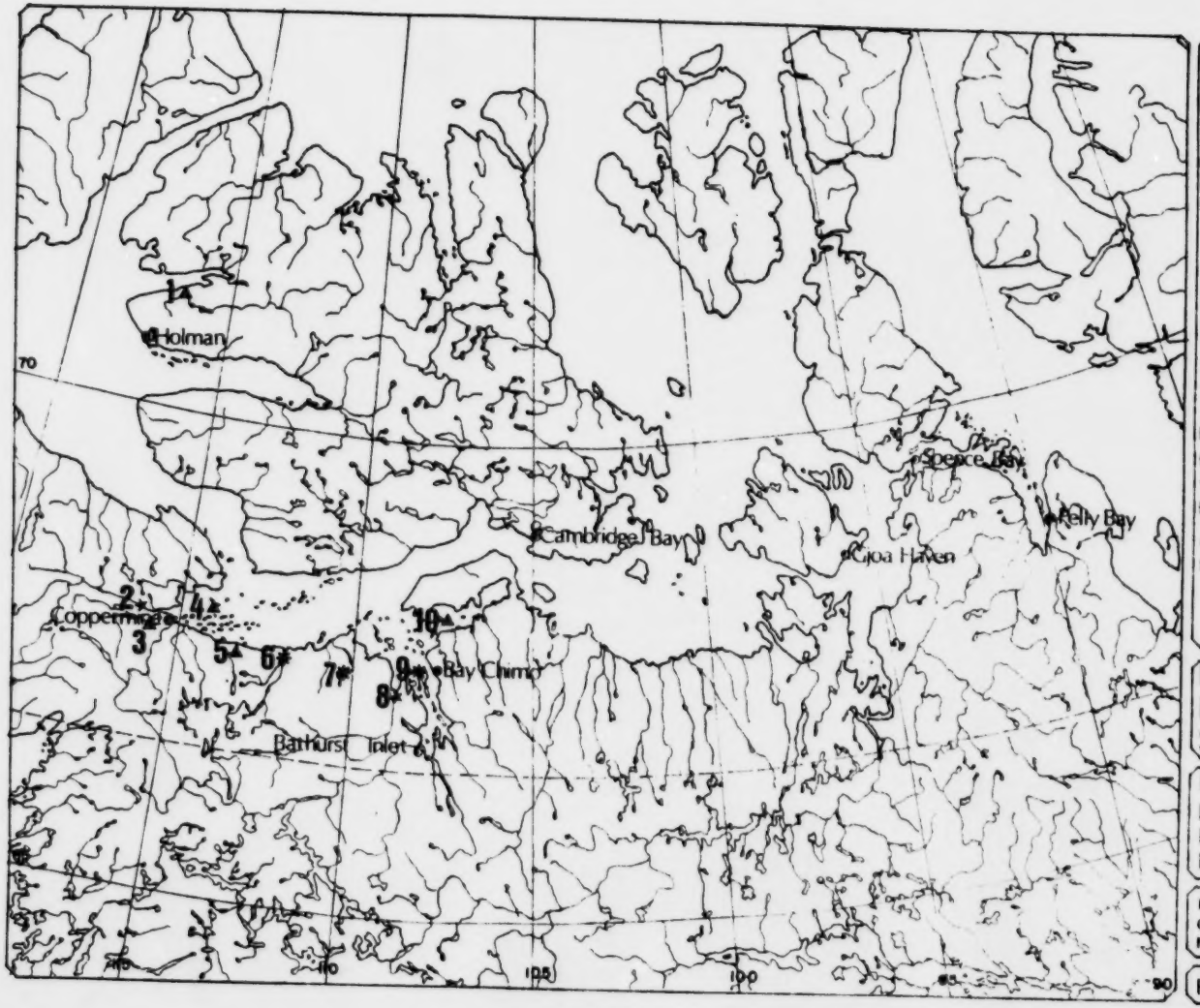
This section enumerates some of the principal characteristics of the Kitikmeot region's water resources. It is notable that in general the region's water resources are of high quality and that few specific water problems can be identified. The consistent high quality of water resources is shown in Table 11 for community water sources.

Freeze-up and break-up can have an important bearing upon navigability of waterways. Break-up in these latitudes typically occurs by mid-July. Freeze-up begins by the end of September. With respect to water access from the Beaufort Sea, it should be noted that the Mackenzie Delta is usually ice free by the end of June and an open shore lead extending through the Amundsen Gulf to the Inuvik region clears by mid-July. There is however, a great deal of uncertainty in these ice conditions as they depend on highly variable climatic conditions from one year to the next. Coastal lagoons with open shore leads can occur as early as March. Tides in the region have very little affect on local conditions as they seldom exceed 2 metres. Salinities are depth dependent and range from 23-29 parts per thousand for surface waters up to 33 parts per thousand at 30 metre water depths.

Carving Stone

Carving stone is a rock used for specific purposes such as carving. Several rock types can and are used for this purpose however, "soapstone" is the most important. Soapstone is an impure talcose rock which has a greenish- grey colour. It is soft enough to be easily cut and sculptured.

For the purpose of this report, soapstone occurrences are divided into three classifications: major, minor and reported. The major and minor occurrences have all been documented. Reported occurrences are not documented. Figure 12 locates carving stone occurrences in the Kitikmeot region.



CARVING STONE OCCURRENCES

12

OCCURRENCE

- Major ✱
- Minor ✶
- Reported ▲

LOCATION

- ▲1 MINTO INLET
- ✶2 RAE RIVER
- ▲3 RICHARDSON RIVER
- ▲4 COUPER ISLANDS
- ▲5 HANEROK RIVER
- ✱6 PORT EPWORTH
- ✱7 HIGH LAKE
- ✶8 BAILLIE BAY
- ✱9 EKALULIA ISLAND
- ▲10 HURD ISLAND

Sources - (1) Gibbons, Walter, pers comm.
(2) Murphy, J., SOAPSTONE OCCURRENCES IN THE NORTHWEST TERRITORIES, GNWT., 1971

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N

miles
0 50 100

kilometres
0 50 150

Aggregate

Aggregate constitutes sand, gravel, and silt and although it is valueless on its own it is an important resource for many types of development activity. It is required for construction and maintenance of roads, airport runways and sewage disposal systems, concrete, and fill for dam sites. The regions glacial history has left many deposits of sand and gravel throughout the region. All of the communities have reasonable quantities of sand and gravel to meet future requirements for the next five years. These sources may not include adequate material for all needs. Some areas may not have enough silt to act as a binder material when used as a surfacing material for roads or airstrips or may be lacking clean crush for concrete purposes. However, these problems can usually be solved by crushing or mixing silt with existing supplies. The Department of Public Works has an on going program to research and identify new and exsisting gravel resources. Permits for gravel exploitation must be obtained from either the Federal, Territorial or Municipal Government depending on the jurisdication.

Table 66 outlines community needs and anticipated requirements for the next five years.

In addition to aggregate requirements for public infrastructure, substantial requirements would also arise in the event of hydroelectric development. The surveys conducted in enumerating hydroelectric sites indicated that, in general, no aggregate shortages would arise with the possible exception of the availability of impervious fill. In most cases, such fill is either non-existent or in a frozen state. Any such developments would hence require the integration of a crushing operation or the inclusion of substantial surveying efforts to locate suitable fill materials.

Sand and Gravel Permits

Federal Lands -Since most northern lands are Federal/Crown lands, most permits or leases are obtained from the Lands Department of the Federal Government, Yellowknife.

Commissoner's Lands- On land that has been established as Commissioner's lands, permits are obtained from the Territorial Government - Local Government Lands and Assessments Department, Yellowknife.

Municipalities- Permits for gravel within municipal boundaries are obtained from each municipality.

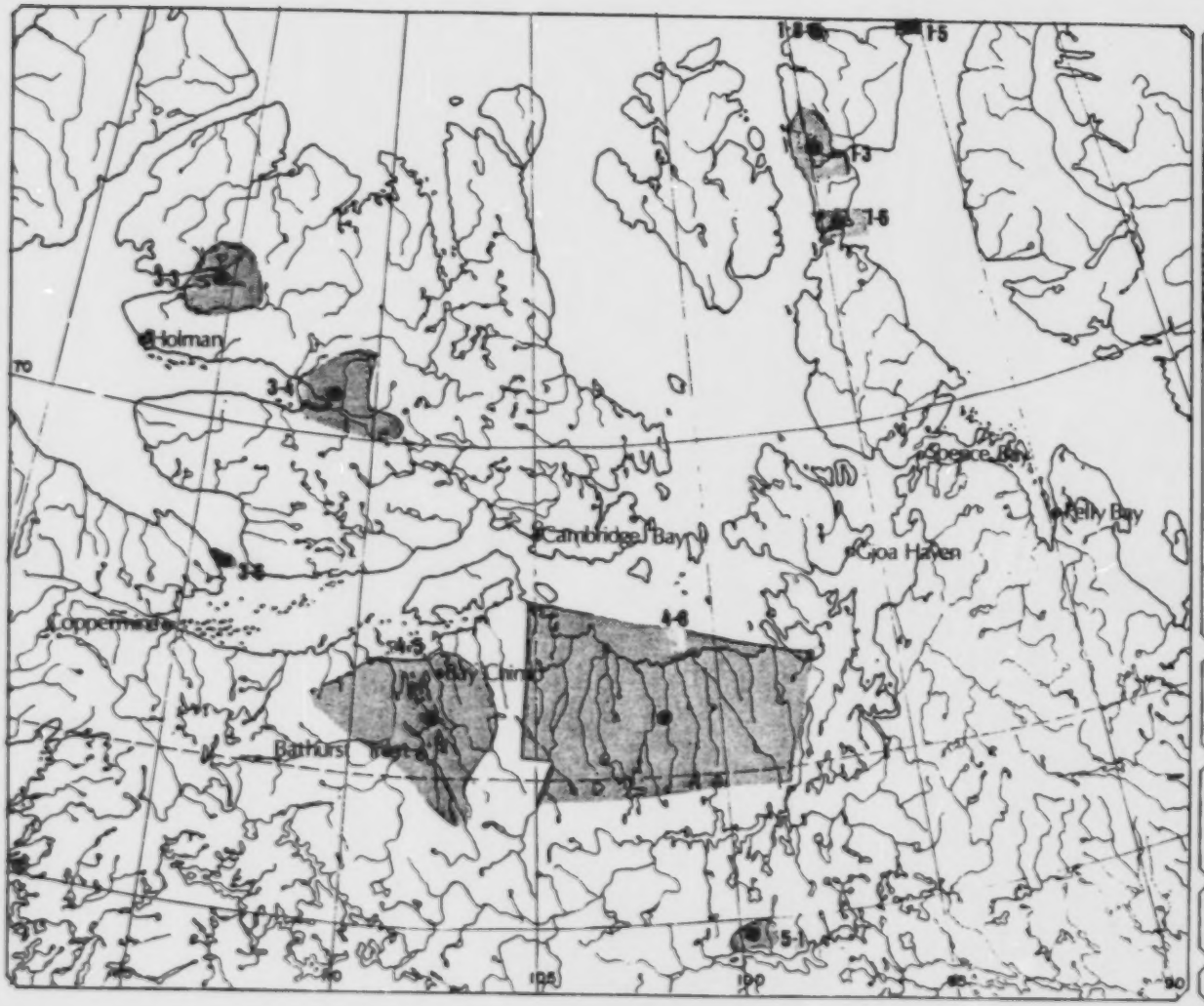
TABLE 66
AGGREGRATE RESOURCES

Location	Availability	Summary	Special Considerations
Bathurst Inlet	Not available		
Cambridge Bay	West pit, 1km west of town, pit run, West Arm pit, 8 km west of town, surface or concrete aggregate	Adequate supplies for next five	More gravel would have to found if large scale development
Coppermine	MOT gravel source 7 miles from town, crushing only, 4 Mile Bay, winter only, clean sand behind airstip, available any time, Tank Farm pit almost depleted	Adequate with no major development	
Gjoa Haven	Pit located 2 mile southeast airstrip, substantial reserves	Substantial reserves	
Holman Island	Pits west of town, both sand and gravel		
Pelly Bay	Pit 4 km from town of egg size gravel with little silt	Vast quantities of beach deposits	
Spence Bay	Pit 2 km northwest of town screened for good surfacing, material, mostly sand or boulders	Adequate supplies available	

SOURCES: 1) Department of Public Works, G.N.W.T.
2) Ripley, Klohn, Lenoff International Ltd., 1972
3) Pemcan, 1972
4) Fred Ross and Associates Ltd.

Natural Sites

Figure 13 illustrates natural sites and wildlife sanctuaries which have been set aside by the International Biological Programme as important to the maintenance of a balanced ecosystem.



IBP
ECOLOGICAL SITES

13

NUMBER / LOCATION

1-3	Stanwell-Fletcher Lake, Somerset Island
1-5	Prince Leopold Island and Cape Clarence
1-6	Bellot Strait, Boothia Peninsula
1-8	Cunningham Inlet, Somerset Island
3-3	Minto Inlet, Victoria Island
3-4	Prince Albert Sound, Victoria Island
3-6	Islands of Dolphin and Union Strait
4-5	Bathurst Inlet
4-8	Perry River Sanctuary
5-1	Tibielik River

Source- Beckel, D.K.B. ed., IBP ECOLOGICAL SITES IN SUBARCTIC CANADA, CCIBP-CT-Panel 10

Kitikmeot Region Economic Base Study

Lutra Associates Ltd.
H.J. Ruitenbeek Resource Consulting Limited

Prepared for the Government of the Northwest Territories

FEBRUARY 1985

N

miles
0 50 100

kilometres
0 50 150

SECTION FOUR: HUMAN RESOURCE & PERSONAL INCOME PROFILE

Introduction

The purpose of the human resource and personal income profile is to indicate availability of human resources in regional communities and to estimate the average personal income by each community in the region.

There are two general comments which must be made with respect to this section.

1) A strong data base of human resources in each N.W.T. community does not exist. It is anticipated however, that a Territorial wide, 1985 Labour Force Survey being conducted at the time of this study will provide a more comprehensive base of information on participation rates, education levels and occupational aspirations. The results of this survey may be available simultaneous to the distribution of this study.

2) With respect to income levels, it should be noted that information provided relates only to those aspects of the economy which can be 'tracked' through accepted economic channels. As such, cash sales or renumeration from arts and crafts, country foods, seasonal employment, or illegal activities are not included in the following income profiles.

Demographic Profile

Population

Tables 67 and 68 provide population figures disaggregated by community. Statistics Canada is the source of information for the former Table and the G.N.W.T. Dept. of Health for the latter Table. There are some problems with both of these population figures in that Statistics Canada utilizes a method of randomly rounding data; therefore the figures presented in the following tables may not accurately reflect community populations. As such, Statistics Canada data should be used with some caution. Table 69 displays population projections to 1988 as based on this Statistics Canada data as prepared by the G.N.W.T. Bureau of Statistics.

Figure 14 provides a graphic display of information presented in Tables 68 and 69.

The G.N.W.T. Dept. of Health maintains population figures through its health care system. This system provides the basis for information presented in Table 68. Discussions with the Dept. of Health indicated that there is some error factor in population figures due to the difficulty in maintaining accurate records of persons who become or cease to be N.W.T. residents. The most

TABLE 67
STATISTICS CANADA, POPULATION PROFILE, 1981

LOCATION	0 - 4		5 - 9		10-15		15-19		20-25		25-29		30-34		35-39		40-45		45-49		50-54		55-59		60-64		65+		TOTAL		TOTAL	
	m	f	m	f	m	f	m	f	m	f	m	f	m	f	m	f	m	f	m	f	m	f	m	f	m	f	m	f	m	f	NAT.	OTH.
Bathurst Inlet	5	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	5	-	-	-	-	-	-	10	5	20	-
Bay Chimo	-	5	5	5	-	5	-	5	-	-	5	5	-	5	-	5	-	-	5	-	5	5	-	-	-	-	-	-	30	30	60	-
Cambridge Bay	65	50	45	50	45	45	40	55	65	45	40	45	40	40	25	15	20	20	15	15	20	10	10	5	10	5	15	-	445	400	655	190
Coppermine	45	45	40	50	60	50	60	60	40	45	30	35	30	30	15	15	20	15	15	15	10	10	15	5	10	10	20	15	410	395	755	55
Gjoa Haven	45	45	45	45	35	50	30	20	25	20	15	15	20	10	15	10	15	15	5	10	10	5	5	5	-	5	5	5	265	260	500	25
Holman Island	20	15	20	10	20	30	20	30	20	15	10	15	10	5	10	5	5	5	-	5	-	5	5	5	-	5	-	5	145	155	270	25
Holly Bay	20	20	25	20	30	10	20	15	5	10	10	5	10	10	5	10	5	5	5	-	-	-	-	-	-	-	10	5	145	110	245	15
Spence Bay	30	30	25	20	35	30	40	30	15	20	10	10	15	20	10	10	10	10	10	10	10	-	5	5	-	5	10	5	230	200	400	35

SOURCE: Bureau of Statistics, G.N.W.T. 1981 Census

NOTES: M = male F= female Nat. = native Oth = other
Statistics Canada figures are randomly rounded therefore there is a certain error factor.

TABLE 68
DEPT. OF HEALTH, POPULATION PROFILE, 1980-84

	1980	1981	1982	1983	1984
Bathurst Inlet	47	47	49	48	47
Cambridge Bay	950	1014	1101	1170	1168
Coppermine	780	801	837	881	905
Gjoa Haven	551	568	595	622	625
Holman Island	300	306	313	335	348
Pelly Bay	255	264	272	293	298
Spence Bay	433	447	467	480	492

Note: These figures represent the number of people holding N.W.T. Health Care cards.

Source 1) G.N.W.T. Dept. of Health

TABLE 69
STATISTICS CANADA, POPULATION PROFILE 1971,1976, 1981-88

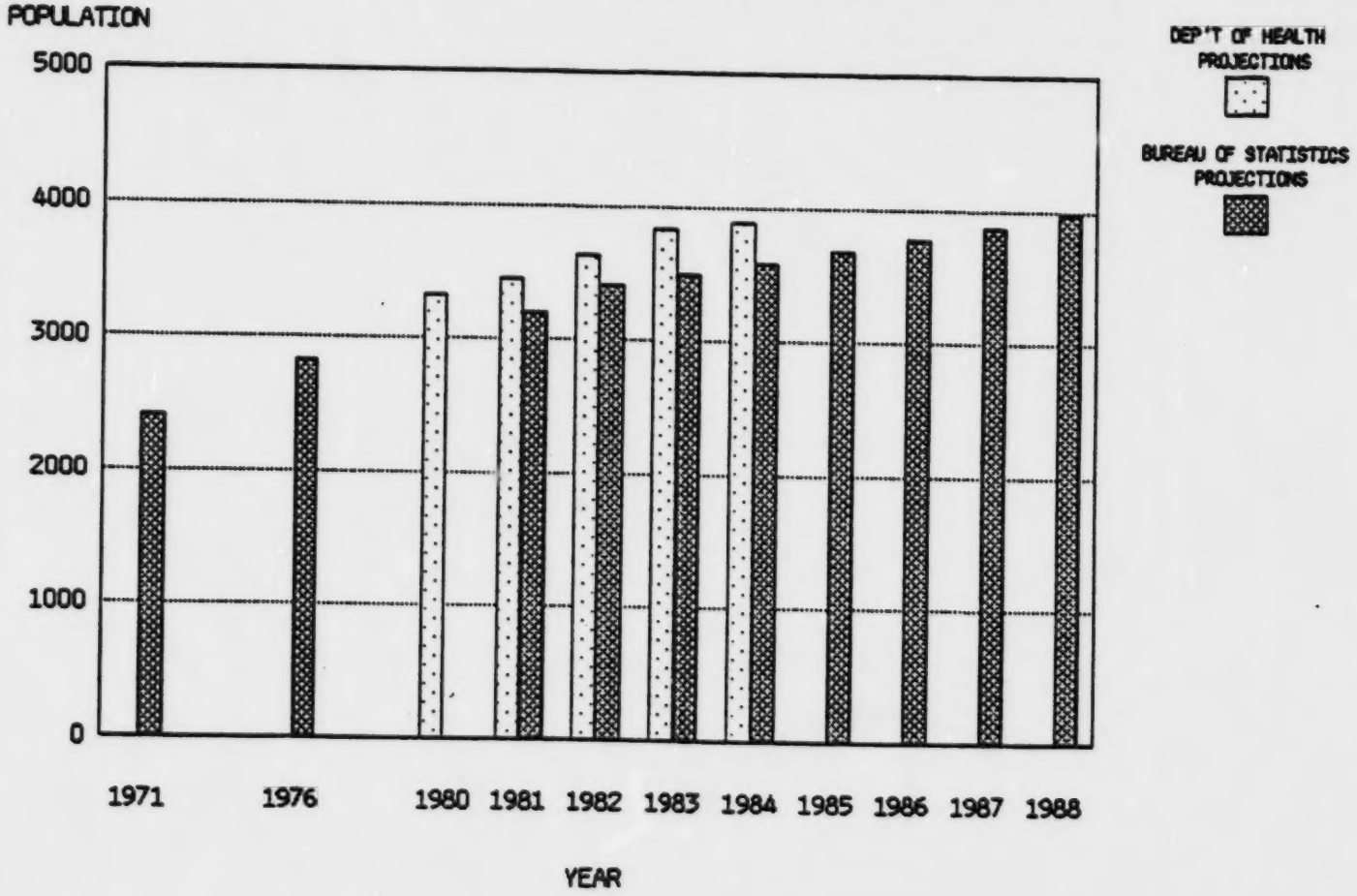
LOCATION	1971	1976	1981	1982	1983	1984	1985	1986	1987	1988
Bathurst Inlet	82	20	20	21	22	22	22	23	23	23
Bay Chimo	-	53	60	60	61	63	64	65	67	68
Cambridge Bay	743	616	815	849	874	899	924	950	975	1001
Coppermine	637	758	818	848	873	899	925	952	979	1007
Gjoa Haven	276	420	500	584	594	606	618	632	646	662
Holman Island	241	264	295	320	331	343	355	367	380	394
Pelly Bay	215	246	260	275	280	286	292	298	304	310
Spence Bay	289	443	435	446	454	464	474	484	495	506

SOURCE: Bureau of Statistics, G.N.W.T. 1971 Census,1976 Census, 1981 Census, 1982-88 Projections

NOTE: Bathurst Inlet figures are high in 1971 as these represent both Bathurst and Bay Chimo.

FIGURE 14

REGIONAL POPULATION PROJECTIONS



SOURCES: TABLES 68 & 69

recent year where a thorough check was conducted of residents and non-residents holding health care numbers was 1980. It is noteworthy that the Department of Health does not develop population projections from health care data but rather uses Statistics Canada information for planning purposes.

Education Levels

Table 70 and Figure 15 document education levels of residents 15+ years of age in each of the regional communities. As has been noted previously, this is Statistics Canada data and therefore there is a certain error factor due to random rounding. As such, the reader should consult with the G.N.W.T. 1985 Labour Force Survey for more detailed and updated information on education levels.

Labour Force

Labour Force by Industry and Occupation

At the time of writing, Statistics Canada census data was the main source of information on labour force activity in the N.W.T. Although this information has been refined by the G.N.W.T. Bureau of Statistics, there are still some inherent problems with this data due to the random rounding of figures. Tables 71 to 75 provide labour force activity information by industry and occupation. Tables 72 and 74 have been prepared to provide a finer disaggregation of those persons involved in local administration (ie. Municipal Council work) and persons involved in primary industries (ie. hunting, trapping, fishing). These particular industry sectors have been selected as they are the most prevalent source of income in smaller communities. Similarly, it is often difficult to 'track' those persons involved in primary industries as much of this income remains unreported.

Given the lack of definitive information on the N.W.T. labour force, a detailed telephone survey was undertaken of businesses registered with the N.W.T. Workers' Compensation Board, local municipalities, Northwestel and the G.N.W.T. Business Directory to gain updated participation levels. This data is summarized in Table 76 and Figure 16 and is supplemented by participation levels in the public sector. It is again noted that pending the availability of the 1985 Labour Force Survey, additional information will be available on the N.W.T. labour force.

1971 and 1976 Labour Force

Tables 77 to 80 provide Statistics Canada information on the N.W.T. labour force from an historical perspective (ie. 1971 and

TABLE 70
EDUCATION LEVELS, 15+ POPULATION, 1981.

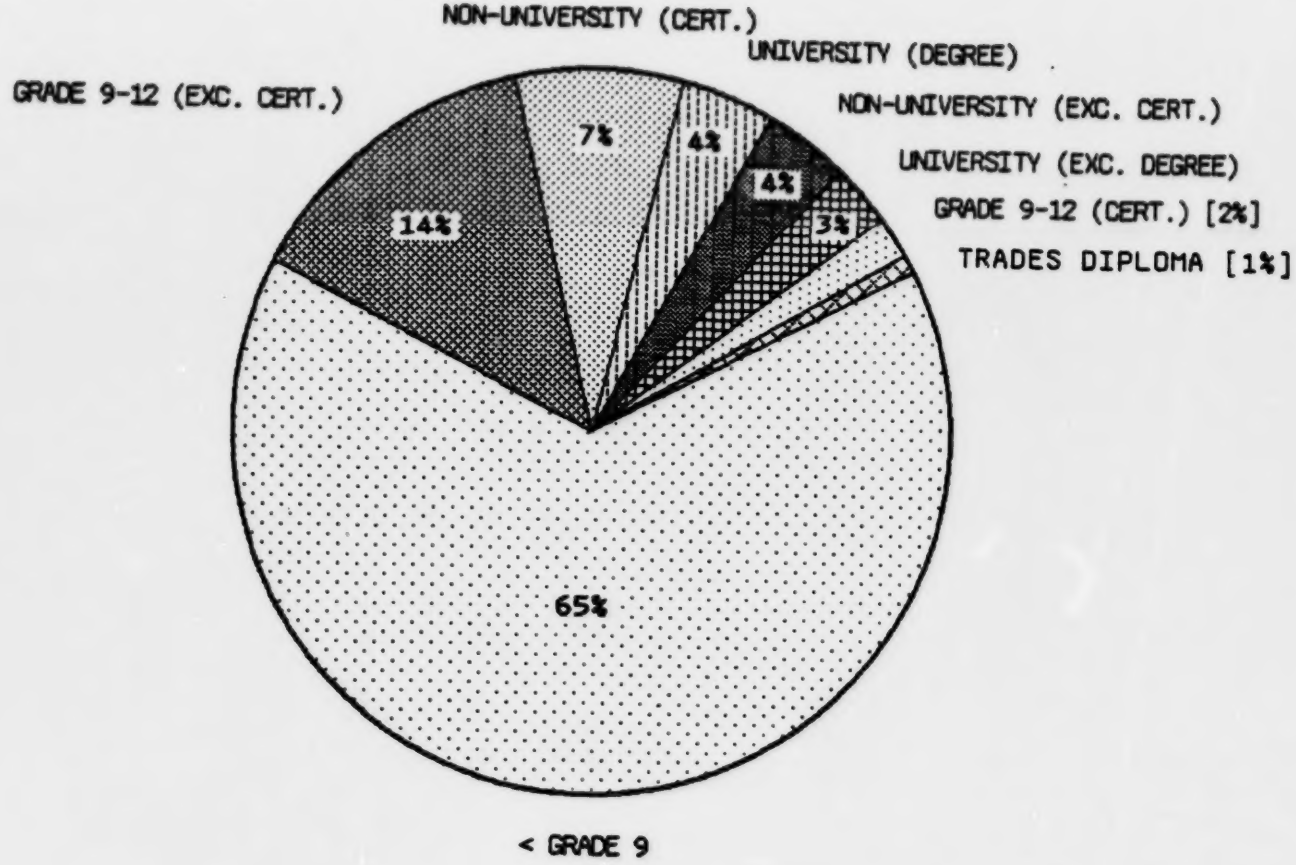
Location	Population 15+ yrs. NATIVE	OTHER	HIGHEST LEVEL OF SCHOOLING < Gr.9	Gr.9-12 < certif.	Gr.9-12 > certif.	Trades Diploma	Other Non University < certif.	Other Non University > certif.	University < Degree	University > Degree
Bathurst Inlet	30	-								
Bay Chimo	35	-	25	-	-	-	-	-	-	-
Cambridge Bay	370	145	205	110	15	5	35	65	25	35
Coppermine	470	45	330	75	10	15	15	35	10	20
Gjoa Haven	245	20	215	20	-	-	5	-	5	5
Holman Island	165	15	135	25	5	-	5	-	-	10
Pelly Bay	120	10	100	10	5	-	5	10	-	5
Spence Bay	230	30	205	20	-	-	5	10	10	5

Notes: Certif. = certification or certificate
Statistics Canada figures are randomly rounded therefore there is a certain error factor. (See Table 2)

SOURCE: Statistics Canada, 1981 Census

FIGURE 15

REGIONAL EDUCATION LEVELS - HIGHEST LEVEL OF SCHOOLING



SOURCE: TABLE 70

TABLE 71
LABOUR FORCE ACTIVITY, 1981

Location/ Sex	Pop. 15+ Years	IN LABOUR FORCE Total	Employed	Unemployed	NOT IN LABOUR FORCE Total	Worked in 1980/81	PARTICIPATION RATE * Total (%)	15-24 yrs. (%)	25+ yrs. (%)	UNEMPLOYMENT RATE Total (%)	15-24 yr. (%)	25+ (%)
BAY CHIMO												
Male	15	5	5	-	10	10	33	-	33	-	-	100
Female	15	5	5	-	10	5	33	50	50	-	-	-
CAMBRIDGE BAY												
Male	275	200	185	15	80	40	73	55	81	8	9	7
Female	245	150	130	20	95	35	61	55	68	13	18	10
COPPERMINE												
Male	260	115	95	25	140	50	44	37	53	22	29	18
Female	250	70	50	15	185	25	28	30	23	21	50	14
GJOA HAVEN												
Male	145	65	60	5	75	30	45	27	50	8	-	11
Female	120	30	25	5	90	20	25	22	27	17	-	25
HOLMAN ISLAND												
Male	90	55	50	-	40	20	61	37	70	-	-	-
Female	95	50	45	5	50	25	53	44	60	10	25	-
PELLY BAY												
Male	70	60	60	-	10	5	86	80	100	-	-	-
Female	60	35	40	5	20	15	58	40	71	14	-	-
SPENCE BAY												
Male	135	65	65	-	75	30	48	36	56	-	-	-
Female	115	25	25	-	90	20	22	22	27	-	-	-

SOURCE: Statistics Canada, Census 1981

NOTES: * Participation Rate is based on workers in the labour force (column 3, i.e. "IN LABOUR FORCE, Total"), and total potential labour force (column 2, i.e. Population 15+ Years"). A sample calculation is as follows: Cambridge Bay (male): Total in labour force (200) is taken as a percentage of total potential labour force (275), totalling 73%, the participation rate.

Statistics Canada figures are randomly rounded therefore there is a certain error factor. (See Table 2)

TABLE 72
LABOUR FORCE BY OCCUPATION: PRIMARY INDUSTRY, 1981

Community	Painters, Sculptors and Related Artists	Farming Horticulture and Animal Husbandry Occupations	Net, Trap and Line Fishing	Trapping and Related Occupations	Fishing, Trapping and Related Occ. N.E.C.
Bathurst Inlet	0	0	0	0	0
Bay Chimo	0	0	0	0	5
Cambridge Bay	0	0	0	10	0
Coppermine	0	0	0	0	0
Gjoa Haven	0	0	0	0	0
Holman Island	5	0	0	0	5
Pelly Bay	5	0	0	20	0
Spence Bay	0	0	0	0	0

Notes: N.E.C.= Not Elsewhere Classified
Statistics Canada figures are randomly rounded therefore there is a certain error factor.

Sources: 1) Statistics Canada, Census 1981
2) G.N.W.T. Bureau of Statistics

TABLE 73
STATISTICS CANADA, INDUSTRY DIVISION & CLASS OF WORKER, 1981

Location	Total labour force	Non applicable industry	All Industry	Primary	Manufact.	Construct.	Transport./ Commun.	Trade	Finance/ Insurance	Community/ Bus./Social	Public Admin./ Defence	Paid Workers	Self Employed
BAY CHIMO	10	-	10	5	-	-	-	-	-	5	-	5 M - F	5 5
CAMBRIDGE BAY	345	5	345	15	-	10	50	55	15	95	90	190 M 140 F	5 5
COPPERMINE	185	15	175	25	-	10	15	30	10	45	35	110 M 65 F	- -
GJOA HAVEN	95	-	90	5	-	5	5	20	5	40	10	60 M 30 F	- -
HOLMAN ISLAND	105	-	100	5	-	5	5	40	5	40	5	45 M 40 F	20 5
PELLY BAY	95	-	95	20	-	-	-	10	5	20	40	35 M 35 F	10 5
SPENCE BAY	90	-	90	-	-	-	15	10	-	40	25	60 M 25 F	5 -

SOURCE: Statistics Canada, Census 1981

NOTES: Statistics Canada figures are randomly rounded therefore there is a certain error factor (see Table 2).
Traditional pursuits of hunting, trapping, & fishing are included in primary industry figures.
See Table 72 for further breakdown.

TABLE 74
LABOUR FORCE BY OCCUPATION: LOCAL ADMINISTRATION, 1981

Community	Local Administration
Bathurst Inlet	0
Bay Chimo	0
Cambridge Bay	10
Coppermine	10
Gjoa Haven	5
Holman Island	0
Pelly Bay	15
Spence Bay	0

Note: Statistics Canada figures are randomly rounded therefore there is a certain error factor.

Sources: 1) Statistics Canada, Census 1981
2) Gov't of the N.W.T., Bureau of Statistics

TABLE 75
STATISTIC CANADA, OCCUPATION PROFILE, 1981

Location/ Sex	Total labour force	Non Applicable Occupation	Manager/ Admin.	Teaching Related	Health/ Medicine	Tech./Social/ Religious/Art	Clerical/ Related	Sales/ Related	Service Related	Primary Occup.	Processing Occup.	Machining/ Fabrication	Construct./ Trades	Transport.	Other
BAY CHIMO															
Male	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Female	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CAMBRIDGE BAY															
Male	195	-	25	10	-	15	15	5	20	10	-	20	40	15	15
Female	145	-	10	15	-	10	40	10	30	-	5	10	-	-	5
COPPERMINE															
Male	115	5	20	5	-	5	10	5	5	10	-	5	20	15	20
Female	70	5	5	10	5	5	20	5	15	-	-	5	-	-	5
GJOA HAVEN															
Male	65	5	10	5	-	-	10	5	5	5	-	5	10	5	5
Female	30	-	-	10	-	5	5	-	5	-	-	-	-	-	-
HOLMAN ISLAND															
Male	50	-	10	-	-	10	5	-	5	5	-	5	5	5	5
Female	50	-	-	5	-	5	20	-	5	-	-	10	-	-	5
PELLY BAY															
Male	40	-	5	5	-	5	5	-	-	20	-	-	-	5	5
Female	25	-	-	5	-	5	5	-	5	-	-	10	-	-	-
SPENCE BAY															
Male	65	-	-	5	-	-	15	5	10	-	-	5	20	5	5
Female	25	-	-	10	5	5	5	5	5	-	-	-	-	-	5

SOURCE: Statistics Canada, Census 1981

NOTES: Statistics Canada figures are randomly rounded therefore there is a certain error factor.

TABLE 76

BUSINESS & GOVERNMENT PARTICIPATION RATES, 1984

	Construction	Sec. Services	Tourism	Transport.	Renewable	Trappers	NonRenewable Resources	Realty & Insurance	Other	Total	Municipal Gov.	Territorial Gov.	Federal Gov.
	# Empl.	#Empl.	#Empl.		#Empl.	#Empl.	#Empl.	#Emp.	#Emp.	#Emp.			
Bathurst Inlet	0	0	2F 1P 2BS	0	0	19S***	0	0	0	2F 1P 39S	0	0	0
Bay Chimo	0	0	0	0	0		0	0	0	0	0	0	0
Cambridge Bay**	29F 4P 18S	44F 24P	22F 7P 24S	24F8P	16F7P	57S	0	2F	17F 10P	154F 68P 99S	14F 4P	101	134*
Copperaine**	5F 7P 8S	20F 3P 2S	2F 2P	6P	0	114S	0	0	1P	27F 19P 124S	23F 2P	29	0
Gjoa Haven**	2F	15F 11P	8F 25P	10F6P	0	44S	0	0	8F 5P	43F 47P 44S	19F 5P	25	0
Holman Island**	1F 3S	17F 3S	11F 2P 19S	3F2P	0	59S	0	0	11F 1P	43F 5P 84S	7F 7P	9	0
Pelly Bay**	0	10F 4P	9F3P	9F3P	0	11S	0	0	2F 4S	38F 10P 15S	11F 4P	13	2
Spence Bay**	0	15F 5P	8F4P	1F1P	0	53S	0	0	8F	32F 10P 53S	14F 5P	24	0
Regional Totals	37F 11P 29S	121F 47P 5S	62F 44P 63S	47F 26P	16F 7P	357S	0	2F	46F 17P 4S	331F 152P 458S	88F 27P	201	136

* Cambridge Bay represents the total number of employees in Health District E 4PT which is comprised of all federal employees not just those in health related occupations. The geographical area that Health District E 4PT represents includes the communities of Gjoa Haven, Cambridge Bay, Pelly Bay and Spence Bay. Therefore, the total employees given for Cambridge Bay is incorrect as it includes the total number of federal employees throughout the region.

** Some businesses in the small communities are widely diversified, therefore, have been included in more than one business class. Unfortunately, because the task of separating the employees of these businesses by business class is impossible, the total number of employees are included in each of the different business classes. Therefore, the number of employees in some business classes may be inflated.

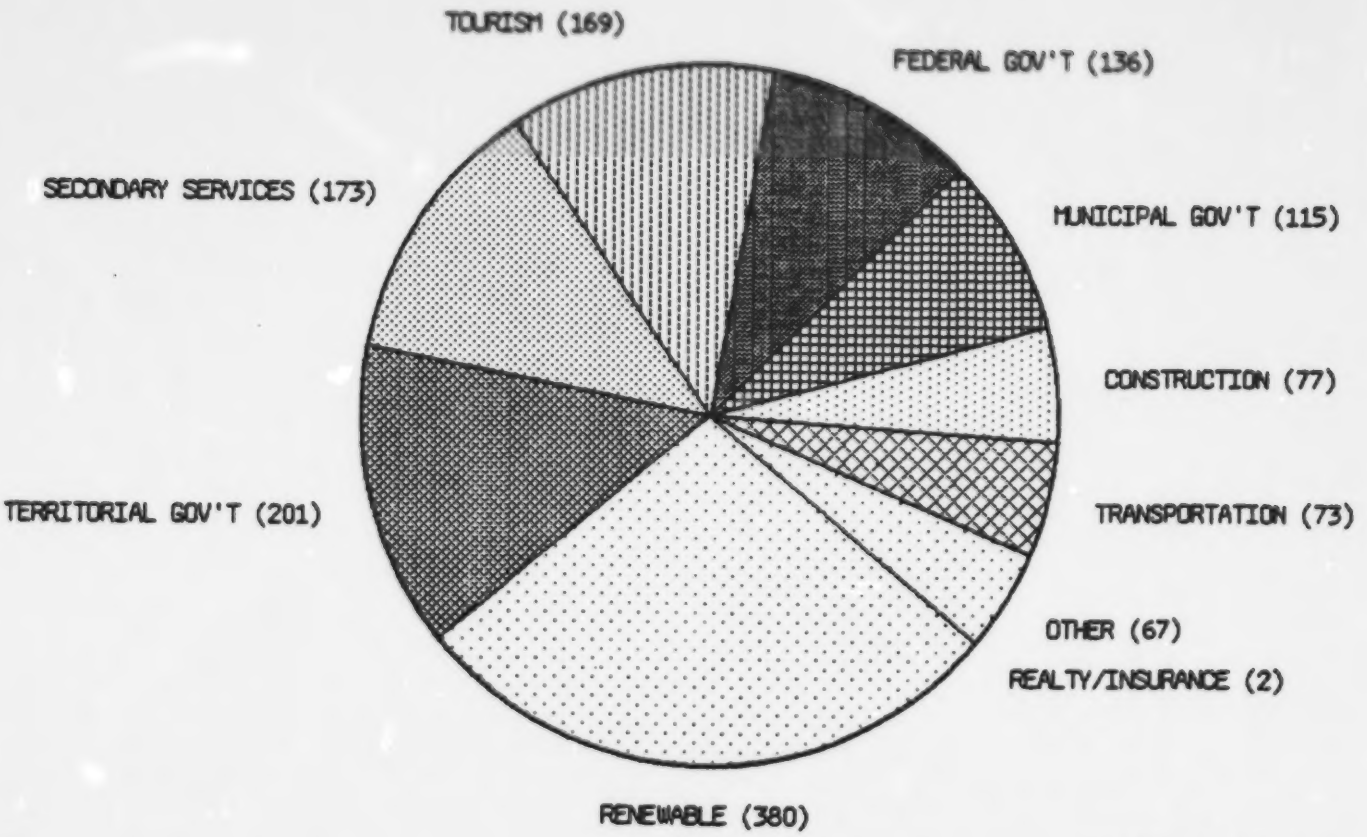
*** Bathurst Inlet & Bay Chimo totals are combined.

Notes: F=full time P=part time S=seasonally # Empl.= The number of employees working in each class.
1982 figures are used for persons involved in the trapping sector as 1984 figures are not available.

Sources 1) Dept. of Education, Gov't of the N.W.T., Employment Survey, Aug. 1984
2) Dept. of Personnel, Government of the N.W.T.
3) Public Service Commission, Government of Canada.
4) See Table 89

FIGURE 16

SUMMARY OF REGIONAL EMPLOYMENT
(Total Employment = 1,393)



SOURCE: TABLE 76

TABLE 77
LABOUR FORCE STATISTICS
1971 CENSUS - FEMALES

	FRANKLIN DISTRICT	MACKENZIE DISTRICT	KEEWATIN DISTRICT
ALL INDUSTRIES	475	2,270	185
AGRICULTURE	0	5	0
FORESTRY	0	5	0
FISHING/TRAPPING	5	5	0
MINES/QUARRIES/OILWELLS	0	75	0
MANUFACTURING	70	45	35
CONSTRUCTION	5	25	0
TRANSPORTATION/COMMUNICATION/UTILITIES	30	175	5
TRADE/RETAIL	30	265	40
FINANCE/INSURANCE/ REAL ESTATE	5	70	0
COMMUNITY, BUSINESS, PERSONAL SERVICE	190	1,110	65
PUBLIC ADMIN/ DEFENCE	125	450	40
OTHER	15	30	0
POPULATION (>15 YEARS)	1,890	6,580	795
LABOUR FORCE (>15 YEARS)	615	2,630	205
PARTICIPATION RATE	32.5	40.0	25.8
POPULATION 15-19	325	1,025	130
LABOUR FORCE 15-19	105	275	20
PARTICIPATION RATE 15-19	32.3	26.8	15.4
POPULATION 20-24	365	1,185	135
LABOUR FORCE 20-24	175	645	45
PARTICIPATION RATE 20-24	47.9	54.4	33.3
POPULATION 25-34	565	1,785	235
LABOUR FORCE 25-34	175	720	75
PARTICIPATION RATE 25-34	31.0	40.3	31.9
POPULATION 35-44	330	1,120	145
LABOUR FORCE 35-44	85	430	35
PARTICIPATION RATE 35-44	25.8	38.4	24.1
POPULATION 45-54	165	770	75
LABOUR FORCE 45-54	50	345	20
PARTICIPATION RATE 45-54	30.3	44.8	26.7
POPULATION 55-64	95	395	55
LABOUR FORCE 55-64	20	170	10
PARTICIPATION RATE 55-64	21.1	43.0	18.2
POPULATION >64	40	295	30
LABOUR FORCE >64	5	45	0
PARTICIPATION RATE >64	12.5	15.3	0.0

SOURCE: 1971 CENSUS, STATISTICS CANADA,
CAT. 94-741, VOL. III, PART 4, 1975.

TABLE 78
LABOUR FORCE STATISTICS
1971 CENSUS - MALES

	FRANKLIN DISTRICT	MACKENZIE DISTRICT	KEEWATIN DISTRICT
ALL INDUSTRIES	1,395	5,495	470
AGRICULTURE	0	10	0
FORESTRY	0	85	0
FISHING/TRAPPING	150	145	60
MINES/QUARRIES/OILWELLS	25	1,295	5
MANUFACTURING	35	105	10
CONSTRUCTION	110	440	40
TRANSPORTATION/COMMUNICATION/UTILITIES	190	860	35
TRADE/RETAIL	145	540	90
FINANCE/INSURANCE/ REAL ESTATE	5	40	0
COMMUNITY, BUSINESS, PERSONAL SERVICE	180	710	75
PUBLIC ADMIN/ DEFENCE	530	1,355	155
OTHER	30	70	10
POPULATION (>15 YEARS)	2,105	7,630	865
LABOUR FORCE (>15 YEARS)	1,445	5,625	510
PARTICIPATION RATE	68.6	73.7	59.0
POPULATION 15-19	305	1,060	135
LABOUR FORCE 15-19	110	460	20
PARTICIPATION RATE 15-19	36.1	43.4	14.8
POPULATION 20-24	375	1,250	125
LABOUR FORCE 20-24	280	985	80
PARTICIPATION RATE 20-24	74.7	78.8	64.0
POPULATION 25-34	635	2,075	235
LABOUR FORCE 25-34	520	1,770	180
PARTICIPATION RATE 25-34	81.9	85.3	76.6
POPULATION 35-44	365	1,410	185
LABOUR FORCE 35-44	280	1,180	125
PARTICIPATION RATE 35-44	76.7	83.7	67.6
POPULATION 45-54	250	925	105
LABOUR FORCE 45-54	175	730	70
PARTICIPATION RATE 45-54	70.0	78.9	66.7
POPULATION 55-64	125	580	65
LABOUR FORCE 55-64	70	415	25
PARTICIPATION RATE 55-64	56.0	71.6	38.5
POPULATION >64	45	335	25
LABOUR FORCE >64	15	80	5
PARTICIPATION RATE >64			

SOURCE: 1971 CENSUS, STATISTICS CANADA,
CAT. 94-741, VOL. III, PART 4, 1975.

TABLE 79
LABOUR FORCE STATISTICS
1971 CENSUS - TOTAL POPULATION

	FRANKLIN DISTRICT	MACKENZIE DISTRICT	KEEWATIN DISTRICT
ALL INDUSTRIES	1,870	7,765	655
AGRICULTURE	0	15	0
FORESTRY	0	90	0
FISHING/TRAPPING	155	150	60
MINES/QUARRIES/OILWELLS	25	1,370	5
MANUFACTURING	105	150	45
CONSTRUCTION	115	465	40
TRANSPORTATION/COMMUNICATION/UTILITIES	220	1,035	40
TRADE/RETAIL	175	605	130
FINANCE/INSURANCE/ REAL ESTATE	10	110	0
COMMUNITY, BUSINESS, PERSONAL SERVICE	370	1,820	140
PUBLIC ADMIN/ DEFENCE	655	1,805	195
OTHER	45	100	10
POPULATION (>15 YEARS)	3,995	14,210	1,660
LABOUR FORCE (>15 YEARS)	2,060	8,255	715
PARTICIPATION RATE	51.6	58.1	43.1
POPULATION 15-19	630	2,085	265
LABOUR FORCE 15-19	215	735	40
PARTICIPATION RATE 15-19	34.1	35.3	15.1
POPULATION 20-24	740	2,435	260
LABOUR FORCE 20-24	455	1,630	125
PARTICIPATION RATE 20-24	61.5	66.9	48.1
POPULATION 25-34	1,200	3,860	470
LABOUR FORCE 25-34	695	2,490	255
PARTICIPATION RATE 25-34	57.9	64.5	54.3
POPULATION 35-44	695	2,530	330
LABOUR FORCE 35-44	365	1,610	160
PARTICIPATION RATE 35-44	52.5	63.6	48.5
POPULATION 45-54	415	1,695	180
LABOUR FORCE 45-54	225	1,075	90
PARTICIPATION RATE 45-54	54.2	63.4	50.0
POPULATION 55-64	220	975	120
LABOUR FORCE 55-64	90	585	35
PARTICIPATION RATE 55-64	40.9	60.0	29.2
POPULATION >64	85	630	55
LABOUR FORCE >64	20	125	5
PARTICIPATION RATE >64	23.5	19.8	9.1

SOURCE: 1971 CENSUS, STATISTICS CANADA,
CAT. 94-741, VOL. III, PART 4, 1975.

TABLE 80
LABOUR FORCE STATISTICS
1976 CENSUS

	9101 DISTRICT	9102 DISTRICT	9103 DISTRICT	9104 DISTRICT	9105 DISTRICT
TOTAL POPULATION (>15 YEARS)	3,155	3,010	4,585	6,925	4,755
TOTAL LABOUR FORCE (>15 YEARS)	1,820	1,770	3,535	5,010	3,120
PARTICIPATION RATE	57.7	58.8	77.1	72.3	65.6
EMPLOYED MALE 15-24	325	305	540	910	490
EMPLOYED MALE 25-44	600	540	1,100	1,530	1,060
EMPLOYED MALE 45-64	225	215	385	600	310
EMPLOYED MALE >65	20	20	15	60	40
UNEMPLOYED MALE	50	50	65	185	90
TOTAL MALE LABOUR FORCE (>15 YEARS)	1,220	1,130	2,105	3,285	1,990
TOTAL MALE POPULATION (>15 YEARS)	1,650	1,600	2,460	3,795	2,525
MALE PARTICIPATION RATE	73.9	70.6	85.6	86.6	78.8
EMPLOYED FEMALE 15-24	220	230	480	565	330
EMPLOYED FEMALE 25-44	230	275	665	725	535
EMPLOYED FEMALE 45-64	90	100	210	255	150
EMPLOYED FEMALE >65	15	15	5	35	25
UNEMPLOYED FEMALE	45	20	70	145	70
TOTAL FEMALE LABOUR FORCE (>15)	600	640	1,430	1,725	1,130
TOTAL FEMALE POPULATION (>15)	1,510	1,410	2,125	3,130	2,225
FEMALE PARTICIPATION RATE	39.7	45.4	67.3	55.1	50.8

SOURCE: 1976 CENSUS, STATISTICS CANADA.

NOTES TO TABLE 80

CROSS REFERENCED CENSUS LISTS

REGION	COMMUNITY	1971 CENSUS	1976 CENSUS
Fort Smith	Detah/Rainbow Valley	Mackenzie	9102
Fort Smith	Enterprise	Mackenzie	9104
Fort Smith	Fort Liard	Mackenzie	9105
Fort Smith	Fort Providence	Mackenzie	9104
Fort Smith	Fort Resolution	Mackenzie	9104
Fort Smith	Fort Simpson	Mackenzie	9104
Fort Smith	Fort Smith	Mackenzie	9104
Fort Smith	Hay River	Mackenzie	9104
Fort Smith	Hay River Reserve	Mackenzie	9104
Fort Smith	Jean Marie River	Mackenzie	9104
Fort Smith	Kakisa	Mackenzie	9104
Fort Smith	Lac la Martre	Mackenzie	9102
Fort Smith	Nahanni Butte	Mackenzie	9104
Fort Smith	Pine Point	Mackenzie	9104
Fort Smith	Rae Lakes	Mackenzie	9102
Fort Smith	Rae-Edzo	Mackenzie	9102
Fort Smith	Reliance	Mackenzie	9102
Fort Smith	Snare Lakes	Mackenzie	9102
Fort Smith	Snowdrift	Mackenzie	9102
Fort Smith	Trout Lake	Mackenzie	9104
Fort Smith	Tungsten	Mackenzie	9105
Fort Smith	Wrigley	Mackenzie	9104
Fort Smith	Yellowknife	Mackenzie	9103
Inuvik	Aklavik	Mackenzie	9105
Inuvik	Arctic Red River	Mackenzie	9105
Inuvik	Colville Lake	Mackenzie	9105
Inuvik	Fort Franklin	Mackenzie	9105
Inuvik	Fort Good Hope	Mackenzie	9105
Inuvik	Fort McPherson	Mackenzie	9105
Inuvik	Fort Norman	Mackenzie	9105
Inuvik	Inuvik	Mackenzie	9105
Inuvik	Norman Wells	Mackenzie	9105
Inuvik	Paulatuk	Mackenzie	9105
Inuvik	Sachs Harbour	Franklin	9105
Inuvik	Tuktoyaktuk	Mackenzie	9105
Kitikmeot	Bathurst Inlet	Mackenzie	9102
Kitikmeot	Cambridge Bay	Franklin	9101
Kitikmeot	Coppermine	Mackenzie	9102
Kitikmeot	Gjoa Haven	Franklin	9101
Kitikmeot	Holman Island	Franklin	9102
Kitikmeot	Pelly Bay	Keewatin	9101
Kitikmeot	Spence Bay	Keewatin	9101

1976). It is noted that census data as compiled for the 1981 census is not available for the years 1971 and 1976. A number of factors contribute to the paucity of data for 1971 and 1976 and can be summarized as follows:

1) 1976 Census data is for less than a 100% sample size and no occupation breakdown is provided. This is largely because 1976 was an interim census.

2) Census region divisions have changed twice over the period 1971-1981. Aggregate data for 1971 is broken down to the Mackenzie, Keewatin and Franklin Districts. Data for 1976 is aggregated to six census divisions.

Aggregate data are provided in Tables 77 to 80 for the then existing census divisions, concentrating on the Fort Smith, Inuvik and Kitikmeot Regions. Notes to Table 80 provide a cross-reference for all communities in these regions to their corresponding 1971 and 1976 census districts. It should be noted that the 1971 Franklin District included all N.W.T. communities not on the mainland and that the 1971 Keewatin District included all current Keewatin Region mainland communities.

With respect to 1976 aggregations, Baffin Island falls into District 9100. All current Keewatin Region communities fall into District 9101. Other Baffin Region communities in the Arctic Islands fall into Districts 9101 and 9102.

Personal Income Profile

The purpose of this section is to enumerate by community the major income sources for residents living in the region. Income is reported under six main headings: trapping income, imputed income from domestic country food consumption, income from private sector sources, public sector income, federal transfer payments and territorial social assistance payments.

Information on incomes in the region was gathered from a number of available published sources as well as via selected information provided by Revenue Canada. Where income information was not readily available, estimates have been provided as based on discussions with private and public sector employers and/or figures available from previous years.

Every effort has been made to report the income for each community while still allowing anonymity for the residents of that community. Because of the small population base of certain regional communities and the fact that only a few people may be

employed in any one sector of a local economy, it was necessary in some cases to aggregate data to avoid identification of income to any single individual.

It is noted that short term employment grants or other income subsidies available to communities are not included in the personal income profile. It is well known that Canada Employment and Immigration Commission (C.E.I.C.) and G.N.W.T. job creation and training programs greatly impact the economy of each community in the region, providing short term community infrastructure improvement related jobs. The short term nature of these employment and training programs is not well documented as the frequency by which they occur in each community is variable. Information provided by the economic planner of the Dept. of Economic Development & Tourism in the Fort Smith region for the 1982/83 fiscal year does indicate the nature of this activity in that region and does allow the reader to make similar assumptions about other regions in the N.W.T. Information from the Fort Smith region indicates that assistance from G.N.W.T. Dept. of Renewable Resources in the form of Trappers' Incentive Grants, Outpost Camp Grants and Trappers' Assistance Grants averages $7,727. per annum per community. Average annual assistance via the G.N.W.T. Short Term Employment Program (STEP) is $18,069. (64 manweeks) per community. Federal C.E.I.C. grant assistance via Outreach Programs, Summer Canada, LEAP, and CCDP averaged $26,937. per annum per community.

Trapping Income

Trapping income shown in Table 81 illustrates both participation in the trapping industry and income earned from trapping sales.

Imputed Income from Country Foods

The consumption of country foods provides a significant contribution to personal income in the Kitikmeot region. Unfortunately, very little data is available, making an accurate assessment of quantities of country foods consumed difficult. Figures provided in Table 82 for caribou and seal harvests are estimates, based on General Hunter's License returns to the Department of Renewable Resources, GNWT. Information on domestic fish consumption is not available. Due to the abundance and availability of fish in the Kitikmeot region, it is assumed that fish consumption is equivalent to caribou consumption.

The larger part of the existing information base has been prepared to study the affects of pipeline projects and oil/gas production on traditional activities. As a result, only selected communities are included in the studies (i.e., those most affect-

TABLE 81
ESTIMATED TRAPPING INCOME, 1982-83,1984

	Number of Trappers	Income from Fur Sales (1982/83)	Average Trapping Income	Income from Fur Sales (1983/84)	Average Trapping Income (1983/84)
Bathurst Inlet/ Bay Chimo	19	$12,486	$652	$12,032	$633
Cambridge Bay	57	$21,012	$368	$54,161	$950
Coppermine	114	$67,702	$593	$112,506	$987
Gjoa Haven	44	$21,053	$478	$32,992	$750
Holman Island	58	$33,933	$585	$63,252	$1,091
Pelly Bay	11	$ 4,233	$384	$24,559	$2,233
Spence Bay	53	$19,002	$358	$43,942	$829
TOTAL	356	$179,341	Average: $503	$343.444	Average: $1068

NOTE: Number of trappers participating in the trapping industry was not available for 1984, thus, 1982/83 participation levels were utilized to estimate average trapping income for 1984.

SOURCE: Government of the Northwest Territories, Department of Renewable Resources, Yellowknife

TABLE B2
ESTIMATED IMPUTED VALUE OF COUNTRY FOODS, 1982

	CARIBOU			SEAL			FISH				
	Estimated Caribou Harvest(a) #of caribou	Estimated value of edible meat (Bodden) (b)	Estimated value of edible meat (Ulu Foods)(c)	Estimated Seal Harvest(a) # of seals	Estimated value of edible meat (Bodden) (d)	Estimated value of edible meat (Ulu Foods) (e)	Estimated Domestic Fish Consumption(f) (kg)	Estimated Value of Fish Consumption (Bodden)(g)	Estimated Value of Fish Consumption (Ulu Foods)(h)	Estimated Total Value of Country Foods (Bodden's prices)	Estimated Total Value of Country Foods (Ulu Foods prices)
Bay Chimo/ Bathurst Inlet	422	$123,941	$142,973	26	$ 6,247	$ 5,791	23,210	$ 25,866	$ 178,717	$155,254	$ 327,481
Cambridge Bay	2161	$634,685	$732,147	112	$ 26,913	$ 24,948	118,855	$128,363	$ 915,183	$789,961	$1,672,278
Coppermine	2256	$662,587	$764,333	549	$131,924	$122,289	124,898	$134,886	$ 955,416	$928,517	$1,842,838
Gjoa Haven	2462	$723,089	$834,125	371	$ 89,151	$ 82,468	135,418	$146,243	$1,842,657	$958,483	$1,959,242
Holman Island	1287	$354,495	$408,931	1665	$400,899	$378,870	66,385	$ 71,696	$ 511,164	$826,298	$1,298,973
Pelly Bay	758	$220,275	$254,188	339	$ 81,461	$ 75,512	41,258	$ 44,558	$ 317,625	$346,286	$ 647,237
Spence Bay	1388	$487,655	$478,254	1844	$250,873	$232,551	76,348	$ 82,447	$ 587,818	$748,975	$1,298,623
TOTAL	10,646	$3,126,730	$3,686,863	4186	$986,671	$914,429	585,530	$632,371	$4,588,580	$4,745,766	$9,829,872

NOTES AND SOURCES:

(a) Harvest figures are from GNWT, Department of Renewable Resources. The information reflects reports made by General Hunter's License holders, October 1982- November 1983.

(b) These figures assume 55kg of edible meat per caribou. A value of $5.34/kg is assigned to calculate dollar value. This figure comes from Bodden, who used $4/kg. Inflated at 6% annually from 1977 to 1982, $5.34/kg is derived.

(c) These figures use the Ulu Foods price for caribou, which in 1984 was $6.96/kg (average price for various cuts of meat.) Assuming a 6% annual inflation rate, the cost in 1982 is $6.16/kg.

(d) These figures assume 45kg of edible meat per seal. $5.34/kg is assigned to calculate dollar value.

(e) These figures use the Ulu Foods price for muktuk, which in 1984 was $5.59/kg. Assuming a 6% annual inflation rate, the cost in 1982 is $4.95/kg.

(f) No information is available on domestic fish consumption. Due to the abundance and availability of fish in the region, it is assumed that fish consumption is equivalent to caribou consumption.

(g) Dollar value is derived by assigning $1.88/kg. This comes from Bodden, who placed a value of $0.83/kg on fish in 1977. Inflated at an annual rate of 6% from 1977 to 1982, the figure $1.88/kg is arrived at.

(h) These figures use the Ulu Foods price for arctic char, which was $8.71/kg in 1984. Assuming an annual inflation rate of 6% the cost in 1982 is $7.78/kg.

ed by the proposed project). Little work of this nature has been done in the Kitikmeot region. The value of country foods has been addressed by Kenneth Bodden in a master's thesis prepared in 1981 (The Economic Use by Native Peoples of the Resources of the Slave River Delta, Edmonton, 1981). The values he derived are based on a two year study of the community of Fort Resolution. Bodden's assigned values of country food are used in Table 82 to calculate estimated value of food consumed. In addition, prices for country food sold by Ulu Foods (Inuvik) are used to calculate estimated value of food consumed. This information is provided in Table 82 for comparative purposes.

Some general statements can be made, based on the work completed in this field. Generally, it appears that food production from big game hunting is declining. This is ascribed to a trend away from traditional activities rather than to a depletion of the resource base. Only a very small number of hunter-trappers appear to be harvesting quantities of game consistent with a full dependency on land resources. Meat is consumed by quantity, not quality -- consumption levels remain roughly the same despite the type of food being eaten. This last point is disputed by some writers, but it is used as the reason for ignoring protein/nutrient value of various types of country foods when calculating imputed values.

Bodden estimates imputed value of country food by assessing the substitution value of these foods, i.e. what would it cost to eat only meats imported from the south? This approach is questioned on the grounds that the food value of southern substitutes is inferior in protein equivalents, but this is not taken into consideration in the data provided in Table 82.

Alternative means of assessing the value of country food production are assigning market values or opportunity costs. Opportunity costs are difficult to assess in the traditional sector, because doing so requires a tally of time spent on traditional activities and putting a dollar value to that time. Market values are equally difficult to assess because country foods rarely enter the market. Where they do enter the market (Ulu Foods in Inuvik, for example), the following retail values (January 1984$) have been assigned to country foods. 1982 prices have been estimated considering inflation at 6% per annum.

	1984	1982
-muskox steaks	6.09/kg.	5.39/kg.
-caribou steaks	7.09/kg.	6.27/kg.
-whitefish fillets	3.39/kg.	3.00/kg.
-arctic char fillets	9.19/kg.	8.13/kg.
-muktuk	5.59/kg.	4.95/kg.

Both market values per Ulu Foods and estimates developed from Bodden's work have been utilized in the preparation of Table 82.

Arts and Crafts Income

In the Kitikmeot region, income data earned through the production and sale of arts and crafts products is difficult to obtain. Although Arctic Co-operatives Ltd. is the main wholesaler/retailer of arts and crafts in the region, records are not maintained as to the number of persons involved in arts and crafts production or the average annual income earned from this source. Since many local artists and craftspeople work on a piece rate basis and/or sell their goods privately, much of this income is not reported to Revenue Canada.

Private Sector Employment Income

Income estimates displayed in Table 83 have been developed from information provided in Table 89 of the business infrastructure section of this study and from Table 76 (Business and Government Participation Rates). There is limited information available on total or average personal incomes derived from each economic sector in the N.W.T., therefore, it has been necessary to develop estimates of average income. Sources contacted to provide base data for average personal income estimates by sector include: C.E.I.C, Worker's Compensation, Bureau of Statistics and Statistics Canada. Statistics Canada data was however utilized to determine the estimated average personal income derived on a community by community basis for each of the eight economic sectors listed in the buisness infrastructure section of this study. Income is not further disaggregated by source in view of the small sample groups involved.

It should be noted that estimates were based on salaried full-time employees. On the one hand, this will tend to create an under-estimating bias as seasonal and part-time income is excluded. On the other hand, an over-estimating bias is introduced because as mentioned in the notes to Table 89, some double counting of employees may occur for those firms with multi-sector operations. Local co-operatives are examples of businesses with multi-sector operations.

Public Sector Employment Income

Government employment income shown in Table 84 includes income from employment with the Government of the N.W.T., Federal Government, Municipal or Community governments and N.C.P.C. which is a Federal Government agency.

TABLE 83
ESTIMATED PRIVATE SECTOR INCOME, 1984

COMMUNITY	FULL TIME EMPLOYEES	TOTAL INCOME ($'000)
Bathurst Inlet/ Bay Chimo	2	43.5
Cambridge Bay	154	3,967.8
Coppermine	27	603.1
Gjoa Haven	43	1,135.4
Holman Island	43	892.8
Pelly Bay	30	775.5
Spence Bay	32	768.6
Total	331	8,158.9

Sources: 1) Table 76
2) Statistics Canada, Cat. 72-002

TABLE 84
PUBLIC SECTOR EMPLOYMENT INCOME, 1984, ($'000)
(GNWT, Federal, Local, NCPC) (a)

Community	Income ('000)
Bathurst Inlet/ Bay Chimo	-
Cambridge Bay	$6,947.2 *
Coppermine	1,002.2
Gjoa Haven	846.7
Holman Island	274.4
Pelly Bay	358.8
Spence Bay	804.3
TOTAL	$10,233.6

SOURCES: 1) Government of the Northwest Territories, Dept. of Personnel
2) Government of Canada, Public Service Commission, Ottawa. The information provided by the Public Service Commission originated in the Department of Supply and Services.
3) Northern Canada Power Commission, Edmonton
4) Association of Municipalities (NWT), Yellowknife

NOTES: * The figure used in calculating federal income in Cambridge Bay is the total income for all of Health District E 4PT. The term Health District is misleading -- all federal employees are included in this grouping. The geographical area that Health District E 4PT represents includes the communities of Gjoa Haven, Pelly Bay, and Spence Bay. The income figure given for Cambridge Bay is thus somewhat inflated, as it includes incomes of employees throughout the region.

(a) Income is aggregated for each community. It is impossible to accurately disaggregate the federal income figures by community due to the grouping of "Health District E 4PT," see note above. In addition, disaggregated income figures by community would destroy confidentiality.

Federal Transfer Payments

Federal transfer payments shown in Table 85 were provided by Health and Welfare Canada. As is indicated in the notes to this Table, rates are based on the maximum monthly rates as pension income varies in accordance with the level of income from other sources.

Gov't of the N.W.T. Social Assistance Payments

Table 86 shows the level of social assistance paid out on a community by community basis. The reason for assistance is broken out by social need and economic need. Social need assistance is issued on the basis of ill health/disabled, dependent children and other. Economic need includes ability to work but unemployed and not enough income. In addition to social assistance payments made for the above reasons, the G.N.W.T. Dept. of Social Services also pays a senior citizen supplement.

Revenue Canada, Income Profiles

Table 87 documents personal income levels reported to Revenue Canada as well as the total number of tax filers. Communities having less than 100 tax filers cannot be analyzed individually so as to protect the confidentiality of the returns. As such those communities having less than 100 tax filers have been grouped with a similar community in the region with a comparable economic base, whenever possible.

Summary

Table 88 provides an estimate of 1984 personal income which has been developed from an inflationary analysis of the previous income tables. Where baseline data were not available for 1984, an inflation factor of 6% has been utilized as a basis for estimating 1984 personal income figures. Per capita incomes are based on 1984 population estimates extrapolated from 1981 Census data. As these population statistics may no longer be current for some of the communities, per capita data should be used with caution and only after verification of current population status. For a comparative figure, 1980 average community incomes per private households is presented as based on a 20% survey of 1981 Census data.

Figures 17 and 18 provide graphic illustrations of data documented in Table 88.

TABLE 85
ESTIMATED FEDERAL TRANSFER PAYMENTS, 1982
('000)

	Family Allowance Receipts	Old Age Security	Guaranteed Income Supplement*	TOTAL FEDERAL TRANSFERS**
Bathurst Inlet/ Bay Chimo	-	-	-	-
Cambridge Bay	$141.1	$59.7	$ 47.9	$248.7
Coppermine	113.3	96.6	105.9	315.9
Gjoa Haven	91.0	36.9	32.1	160.1
Holman Island	47.5	36.9	57.8	142.2
Pelly Bay	44.9	31.2	27.0	103.2
Spence Bay	76.5	31.2	34.1	141.8
TOTAL**	$514.4	$292.7	$304.8	$1,112.8

SOURCE: Government of Canada, Health and Welfare, Ottawa

NOTES: * Guaranteed Income Supplement received depends on the amount of income the pensioner has from other sources. Figures in this table are based on maximum monthly rates, but not all beneficiaries receive maximum benefits. Average benefit amounts are not available.

** Discrepancies in totals are due to rounding .

TABLE 86
TOTAL ANNUAL G.N.W.T. SOCIAL ASSISTANCE PAYMENTS, 1982/83, 1984.

Location	Social Need $		# of Cases		# of Persons		Economic Need $		# of Cases		# of Persons	
	82/83	84	82/83	84	82/83	84	82/83	84	82/83	84	82/83	84
Bathurst Inlet	54,585.	3,232.	73	14	246	48	2,323.	-	8	-	29	-
Bay Chimo	1,651.	-	1	-	3	-	-	-	-	-	-	-
Cambridge Bay	148,763.	70,631.	527	250	1465	652	68,952.	16,866.	261	64	908	223
Coppermine	123,669.	70,274.	376	212	1153	611	51,905.	25,604.	176	84	539	275
Gjoa Haven	82,361.	50,439.	246	145	838	446	91,565.	61,789.	234	161	1252	796
Holman Island	23,897.	17,741.	67	44	183	139	3,996.	3,483.	13	8	48	31
Pelly Bay	25,132.	13,760.	56	42	245	150	30,733.	15,660.	72	41	314	188
Spence Bay	101,629.	53,568.	248	119	757	420	141,486.	73,564.	340	190	1446	767

SOURCE: G.N.W.T., Dept. of Social Services for April 1,1982-March 31,1983 and April 1984-October 1984.

NOTES: Social Need includes: ill health/disabled,dependent children and other,
Economic Need included: unemployed but able and not enough income.
Cases refers to number of applicants while persons
refers to the number of recipients.

October 1984 is the most recent information available.

TABLE 87
REVENUE CANADA, INCOME PROFILE, 1982

Community	# of Tax Filers	Total Income	Employment Income	UIC Benefits	Self-Employ. Income	Labour force Income
Cambridge Bay	555	530	480	-	-	475
		10089	10529	-	-	10465
		13594	17426	-		
Coppermine	365	330	265	-	-	270
		4055	3816	-	-	3937
		6654	10844	-		
Gjoa Haven	205	170	155	-	-	155
		1895	1786	-	-	1826
		4714	5259	-		
Holman Island	140	140	110	-	-	115
		1320	1099	-	-	1155
		5162	6839	-		
Pelly Bay,	310	300	235	-	-	245
Spence Bay ***		3197	2929	-	-	3861
		5769	8754	-		

SOURCE: Revenue Canada

NOTES: There are three figures in 'Total Income' and 'Employment Income' columns; the top figure indicates number of respondents, the second is the total amount reported ($'000) and the bottom figure is the average amount ($).

Communities having less than 100 tax filers cannot be analyzed individually. A lower limit of 100 filers per study area is set to protect the confidentiality of the information presented. Sub-categories (i.e. each column heading, beginning with 'Total Income' and ending with 'Labour Force Income') must have at least 25 respondents before information is recorded in this table. Where 'UIC Benefits' and 'Self-Employment Income' are seen to be nil, they may in fact be greater than nil but less than 25.

The difference between '# of Tax Filers' and 'Total Income' represents those who file a tax return but report no income for the year 1982.

* Three figures in the UIC Benefits column represent: top - number reporting, second - amount ($'000), bottom - unemployment insurance dependency ratio. This is the ratio of UI benefits to employment income

** In the 'Self-Employment Income' column, the first figure indicates the number of respondents, the second is total amount ($'000).

*** Pelly and Spence Bay are grouped together. They share a similar land-based economy. Individually, the # of tax filers in Pelly Bay is less than 100.

Possible data discrepancy due to rounding.

TABLE 88
ESTIMATES OF PERSONAL INCOME FROM ALL SOURCES, 1984

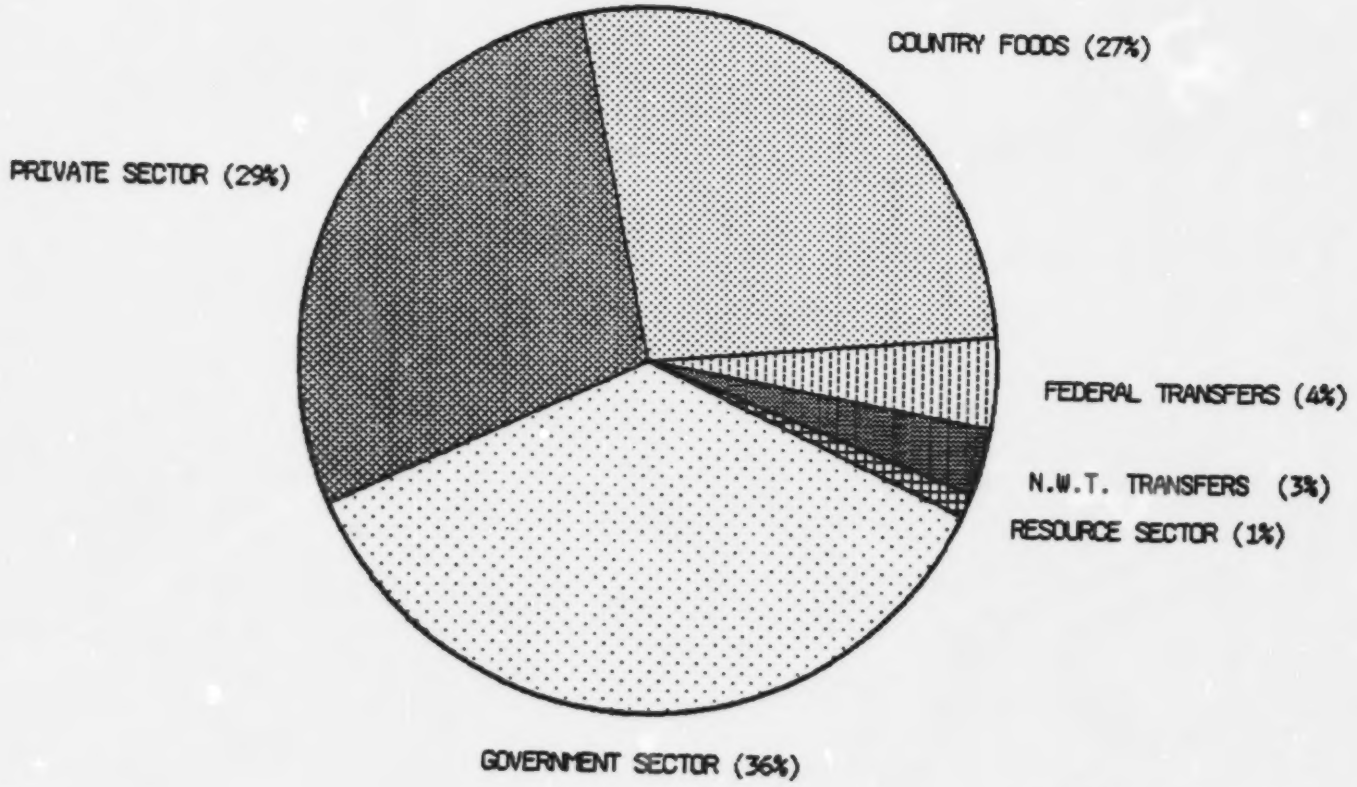
	Income ($'000)					Total Income ($'000)	Country Foods (1)($'000)	Income (2) ($'000)	1980 Income (3) ($'000)
	Private	Gov't	Resources	Federal Transfer	N.W.T. Transfer			per capita	per household
Bathurst Inlet/ Bay Chimo	43.5	-	12	-	5.5	61	271.2	4.0	n/a
Cambridge Bay	3967.0	6947.2	54.1	279.4	150.0	11398.5	1383.3	14.2	24.7
Coppermine	603.1	1002.2	112.5	355.0	164.4	2237.2	1556.5	4.2	17.0
Gjoa Haven	1135.4	846.7	32.9	179.9	286.1	2481.0	1639.2	6.6	14.5
Holman Island	892.0	274.4	63.2	159.0	36.4	1425.0	1189.5	7.6	15.0
Pelly Bay	775.0	358.0	24.5	116.0	50.4	1324.7	558.2	6.6	20.1
Spence Bay	768.6	804.3	43.9	159.3	217.9	1994.0	1141.4	6.7	15.0
Regional Totals	8185.4	10233.6	343.1	1249.4	830.7	20842.2	7739.3	7.1(Average)	18.0(Average)

NOTES: 1) Mean of Bodden and Ulu estimates (See Table 82)
2) Includes country foods. Based on 1984 population estimate in Table 69.
3) Statistics Canada, 1981 Census, based on 20% data

FIGURE 17

ESTIMATES OF PERSONAL INCOME FROM ALL SOURCES, 1984

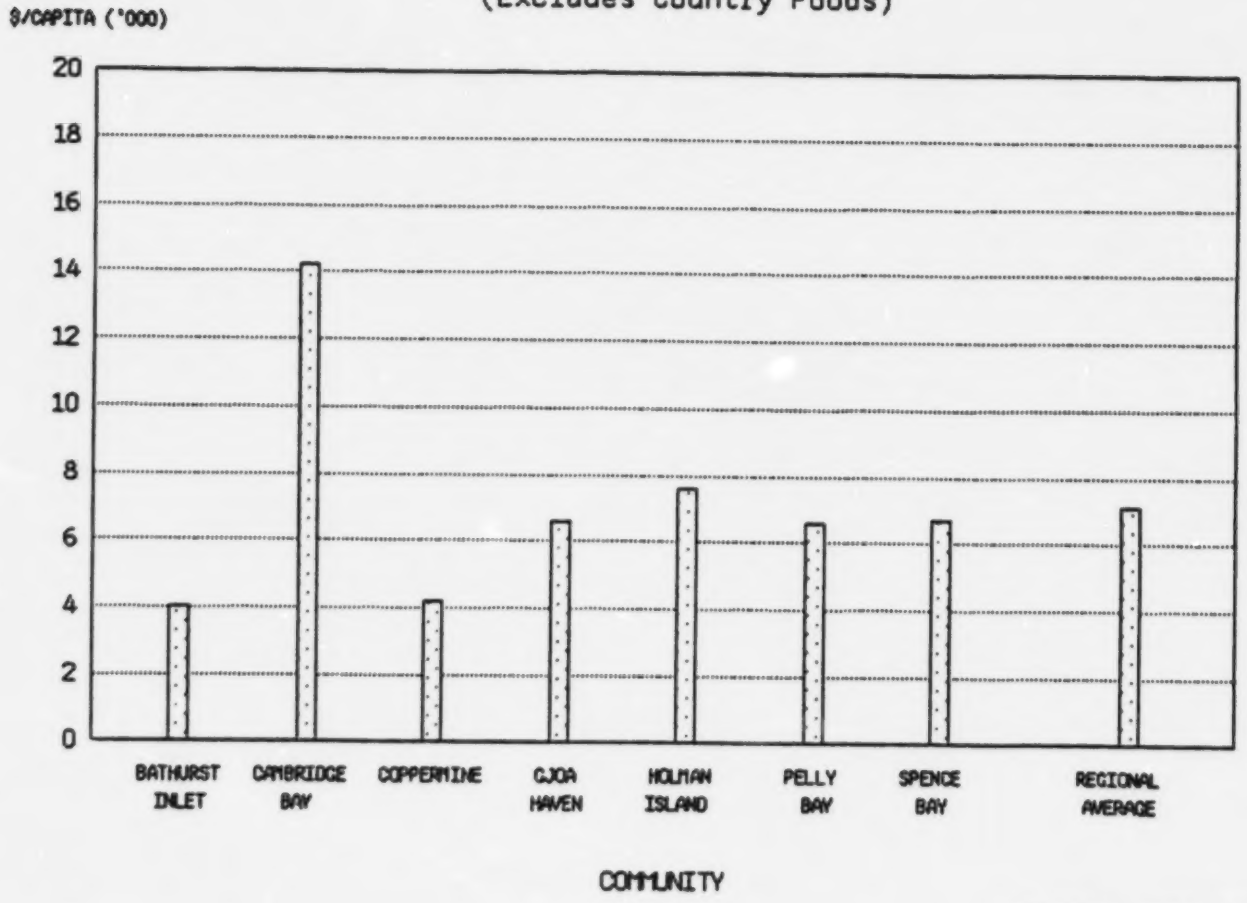
(TOTAL = $28.6 MILLION)



SOURCE: TABLE 88

FIGURE 18

ESTIMATES OF PERSONAL INCOME BY COMMUNITY, 1984
(Excludes Country Foods)



SOURCE: TABLE 88

SECTION FIVE: BUSINESS INFRASTRUCTURE AND MARKET INFORMATION

Local Business Infrastructure

This section is a comprehensive enumeration of the types of businesses in existence in each of the communities in the region. Local businesses have been grouped under eight (8) general categories. These categories are as follows and include:

1.Construction: General building, electrical, welding, mechanical and building equipment contractors; carpet installation, roofing, etc.

2.Transportation: All passenger carriers, taxi, local cartage, freight hauling, long distance movers.

3.Renewable Resources: Forestry, agriculture, country foods, fishing.

4.Non-renewable Resources: Mining, oil and gas exploration and development.

5.Tourism: Travel agencies, local tours, accommodation, outfitters, restaurants, some forms of entertainment. (It is noted that a detailed break-down of accommodation facilities is provided in Table 31 of this study.)

6.Secondary Services: Wholesale and retail trade, business support services, professional services, municipal support services.

7.Real Estate/Financial: Property management, real estate, insurance agencies, banking and financial services.

8.Other: Manufacturing, educational services, personal services, arts and crafts,medical services, communications.

Services provided by municipal governments and local government agencies as well as by non-profit societies are not included in the inventory of community businesses.

Table 89 and Figure 19 provide a summary of local business infrastructure by community. A detailed listing of each community business is attached in Appendix A. Local businesses have been identified in terms of name, location, number of employees, northern/southern ownership and general nature of business.

Utilities have not been included in the business infrastructure profile. Telephone services are provided to all communities in the Kitikmeot, Fort Smith and Inuvik region by Northwestel, a

TABLE 89
SUMMARY OF BUSINESS INFASTRUCTURE, 1984

	Construction # Bus.	Sec. Services # Bus.	Tourism #Bus.	Transportation #Bus	Renewable Resources #Bus.	Non Renewable Resources	Realty & Insurance #Bus.	Other #Bus.	Total #Bus.
Bathurst Inlet	0	0	1	0	0	0	0	0	1
Bay Chimo	0	0	0	0	0	0	0	0	0
Cambridge Bay**	5	8	6	4	1	0	1	5	29
Coppermine**	3	2	2	3	0	0	0	1	11
Gjoa Haven**	1	5	2	3	0	0	0	1	12
Holman Island**	2	3	3	4	0	0	0	2	14
Pelly Bay**	0	3	2	2	0	0	0	1	8
Spence Bay	0	2	1	2	0	0	0	1	6
Regional Totals	11	23	17	18	1	0	1	11	80

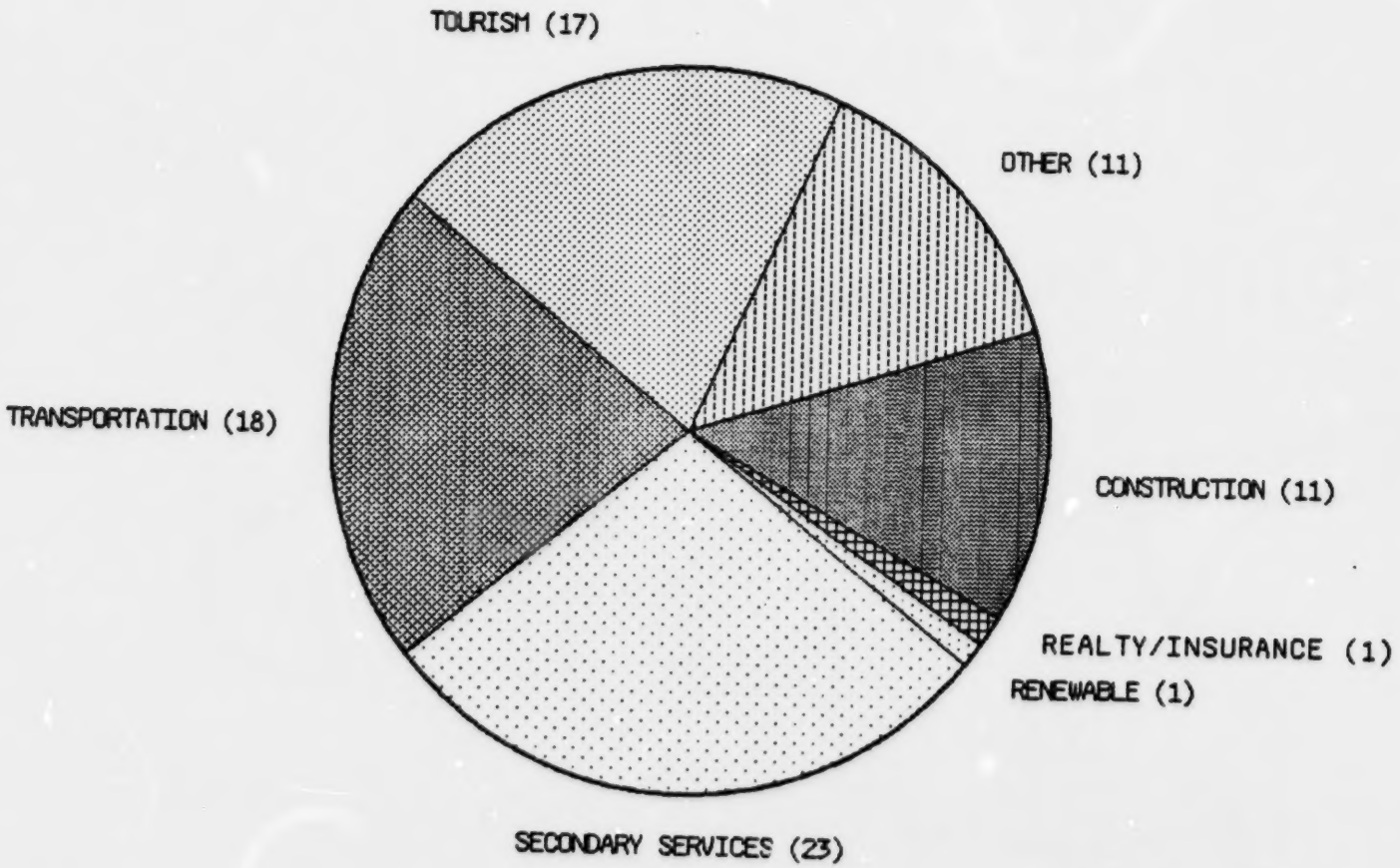
** Some businesses in the small communities are widely diversified, therefore, have been included in more than one business class. Consequently, the number of businesses in some classes may be inflated.

Notes: # Bus.= The number of businesses in each business class.

Sources 1) Gov't of the N.W.T. Northwest Territories Business Directory, 1984
2) Dome Petroleum Ltd. Northern Business Directory, 1983
3) NorthwesTel, Telephone Directory Western Northwest Territories, 1984
4) Business Telephone Survey, conducted by Lutra Assoc. Ltd. 1985
5) Dept. of Economic Development & Tourism, G.N.W.T., Cambridge Bay

FIGURE 19

SUMMARY OF BUSINESS INFRASTRUCTURE
(Total number of businesses = 80)



SOURCE: TABLE 89

subsidiary of Canadian National. Northwestel employs 135 full-time (FT) employees in the north. Electricity is provided to all communities in the Fort Smith, Inuvik and Kitikmeot regions by Northern Canada Power Commission (NCPC), a crown corporation with its head office in Edmonton. The only exception is three communities in the Fort Smith region (Hay River, Enterprise and Fort Providence) which are supplied electricity by Northland Utilities (N.W.T.) Ltd., a subsidiary of Alberta Power Ltd. In Yellowknife, NCPC sells electricity to ICG Utilities.

Although information displayed in Table 89 and in Appendix A was up-to-date as of December 1984, the constantly changing business environment of the region as a result of various government and private sector initiatives renders the information as somewhat dated even within two months of its collection. As such, data should be reviewed with this in mind.

Worthy of note also with regard to Kitikmeot business infrastructure is the central role that Co-operatives play in the economy of the Kitikmeot. Co-ops exist in six of the region's communities and are active in many sectors of the local economy. Local co-op's are members of the Arctic Co-operatives Ltd. whose head office is in Yellowknife. As member co-op's, local operations receive supply, marketing, management and administrative support from the ACL. Local residents have no direct equity invested in these operations, therefore for the purposes of this study, local co-op's are stated as owned by ACL.

Induced Activity from Regional Imports

The purpose of this section is to provide an estimate of the total activity generated by imports into the region, and to compare this to the existing capacity within the region. Ultimately, the analysis serves as a useful preliminary screen for selecting those sectors of the economy which harbour potential for expansion if imports are displaced. The analytical procedure and the results therefrom are discussed below.

First, the commodity imports and transportations service costs are used as a basis for estimating direct economic impacts. From Tables 45 and 47, it is evident that goods worth about $18.4 million were imported in 1982 and that services were valued at $17.6 million. The values of these goods and services were disaggregated to the following Statistics Canada Standard Industrial Classification (SIC) Small Aggregate commodity classes: S6 (Mineral Fuels); S10 (Food Products); S16 (Lumber); S23 (Autos,Trucks & Transportation Equipment); S28 (Miscellaneous Manufactured Products); and S32 (Transportation and Storage).

Statistics Canada provides for disaggregation up to 602 commodity classes but, due to the nature of the information base, aggregated commodity classes were used.

Next, it was assumed that these commodities were sourced in a manner consistent with Canadian commodity sourcing. A model of the input-output structure of the 1976 Canadian economy was used as described in the Statistics Canada Cataloque 15-202. The model represents an estimate of all inter-industry commodity flows occurring within the economy, and is a useful tool for estimating impacts arising from industrial expansion or increases in consumer demand. Induced demands occur through a multiplier effect: initial expansion creates direct demand in a target industry, that industry then requires further inputs from other industries, and so on in a chain-reaction fashion until all direct and indirect demands are satisified. The Input-Output model allows demands to be traced to every industry in the economy, until convergence occurs.

Results of the Input-Output analysis are presented in Table 90. The first column indicates, for each of 16 SIC industries, the total demand resulting from the direct expenditure of $36 million. As is evident from the table, for every dollar of direct expenditure slightly less than one dollar of indirect expenditure occurs, resulting in total demand across all industries of $62.6 million. Most of the direct and indirect demand in this case arises in southern Canada. The 16 SIC categories are further aggregated as shown to correspond to Table 89 and Table 76. Employment profiles for utilities were not addressed in the human resource analysis (Table 76) and are hence also excluded from this analysis.

No direct estimate of regional industrial capacity was available. On the basis of the participation levels presented in Table 76 however, total employment can be used as a first approximation of industrial capacity in each of the eight sectors analysed. The employment in this case refers to the sum of full-time, part-time and seasonal employees by sector within the region.

Two dimensionless "opportunity" indices are calculated which reflect the total demand generated per employee currently operating in that field. The absolute index is simply the total demand (in '000) divided by total employment. A relative index is also calculated to express the ration of the sectoral index to the overall industrial index of 65.98. As a matter of interpretation, it should be noted that a very high opportunity index indicates that very long term opportunities exist in these sectors because a great deal of demand is being generated although regional capacity is currently very low. This is

TABLE 90

INDUCED ACTIVITY FROM REGIONAL IMPORTS

SIC CODE		TOTAL DEMAND ($'000)	EMPLOYMENT (years)	OPPORTUNITY INDEX (ABSOLUTE)	OPPORTUNITY INDEX (RELATIVE)
1	AGRICULTURE	911			
2	FORESTRY	472			
3	FISHING, HUNTING & TRAPPING	80			
4	MINES, QUARRIES, & OILWELLS	10,540			
5	MANUFACTURING	17,632			
6	CONSTRUCTION	1,217			
7	TRANSPORTATION & STORAGE	20,806			
8	COMMUNICATION	668			
9	ELECTRICITY, GAS, & OTHER UTILITIES	554			
10	WHOLESALE TRADE	1,053			
11	RETAIL TRADE	337			
12	FINANCE, INSURANCE & REAL ESTATE	3,034			
13	BUSINESS & PERSONAL SERVICES	1,817			
14	TRANSPORTATION MARGINS	488			
15	OPERATING OFFICE SUPPLIES	2,206			
16	TRAVEL, PROMOTION & ADVERTISING	826			
	TOTAL INDUSTRIES	62,640			
	CONSTRUCTION [SIC-6]	1,217	77	15.80	0.24
	TRANSPORTATION & STORAGE [SIC-7;14]	21,294	73	291.69	4.42
	RENEWABLE RESOURCES [SIC-1;2;3]	1,463	380	3.85	0.06
	NON-RENEWABLE RESOURCES [SIC-4]	10,540	0	-	-
	TOURISM & RECREATION [SIC-16]	826	169	4.89	0.07
	SECONDARY INDUSTRIES [SIC-10;11;13;15]	5,413	173	31.29	0.47
	REAL ESTATE & FINANCIAL [SIC-12]	3,034	2	1516.78	22.99
	OTHER [SIC-5;8]	18,300	67	273.13	4.14
	UTILITIES [SIC-9]	554	-		
	TOTAL INDUSTRIES (EXC. UTILITIES)	62,086	941	65.98	1.00

especially the case in the real estate and financial industries and to a lesser degree in the manufacturing and transportation industries. Very low opportunity indices are not necessarily indicative of low-opportunity sectors. They can equally refer to sectors in which a great deal of current capacity exists, and which thus offer excellent short-term economic opportunities. In the case of the Kitikmeot region, these sectors include renewable resources and tourism.

The above analysis should be considered as a preliminary screening procedure only and it by no means replaces detailed feasibility analyses. More refined estimates can be conducted using the above technique with more refined commodity break-downs and a well-defined Input-Output structural definition of the Northwest Territories and regional economies. No such I/O structure is currently available, and hence the Canadian structure was assumed to be relevant. To the extent that the regional structure differs from the Canadian structure, arguments can be made that activities in some sectors will be mis-stated by the above analysis.

Prevailing G.N.W.T. Construction Costs,

Table 91 has been developed from the "Handi Dandi Rapid Estimator for Miscellaneous Structures" by the Department of Public Works, Government of the N.W.T. The table is based on construction costs from contracts awarded over the years for different structures. Interviews with construction companies would seem to confirm this data.

To use the Table:

1) find the location on the left side of the Table.
2) locate the type of structure along the top line of the building you want to build or cost.
3) locate the intersection of the two lines; this is the cost per square foot of the structure.
4) multiply this number by the square footage of the building you are attempting to estimate.

For example: How much would a 1,000 foot square house cost in Spence Bay?

1) Find Spence Bay on the left at the bottom of the page.
2) Look along the top to single detached.
3) Note their intersection at 138.25; this is the cost per square foot of space.
4) A 1,000 square foot house would cost approximately (1,000 X $138.25), $138,250.

TABLE 91
PREVAILING G.N.W.T. CONSTRUCTION COSTS, 1982
(per sq. foot)

LOCATION	Single Detached	Duplex	Apartment	Row Housing	Mobile Units	Office	Retail	Industrial	Commercial	Warehouse
Bathurst Inlet	134.06	150.07	122.69	134.32	118.42	155.98	125.25	217.34	118.45	126.94
Cambridge Bay	121.50	136.91	111.17	121.73	107.31	141.36	113.51	196.97	107.34	115.04
Coppermine	125.69	141.63	115.02	125.93	108.73	146.24	117.42	203.78	111.05	119.01
Gjoa Haven	142.44	160.51	130.06	142.72	125.02	165.73	133.08	230.93	125.05	134.08
Holman Island	140.77	158.63	128.02	141.04	124.34	163.78	131.51	228.21	124.37	133.29
Pelly Bay	155.01	174.68	141.98	155.31	136.92	180.36	144.82	251.30	136.95	146.78
Spence Bay	138.25	155.79	126.53	138.52	122.12	160.86	129.16	224.14	122.15	130.91

SOURCES: Handi, Dandi Rapid Estimator for Miscellaneous Structues in Northwest Territories, Department of Public Works

NOTE: 1 sq. foot = .0929 m2

A similiar house built in Gjoa Haven would cost about ($142.44 x 1,000), $142,400. These costs do not include land, equipment or furnishings.

Prevailing G.N.W.T. Operations and Maintenance Costs

Table 92 is based on a wide sampling of 1983/84 actual operations and maintenance costs. They represent a rough approximation only since most of the variables have been removed for simplicity. Improved energy designs have produced a need for two sets of values for various building groups. Buildings built after 1979 have generally improved insulation and used other methods to reduce energy use. This breakdown has not yet been done on all types.

How To Use the Table

Maintenance Costs

1) Calculate the square metres of the structure you want to estimate, (length in metres x width in metres)
2) Note the type of structure, what is its use?
3) Go to the table and find the heading for your type of structure.

4) Find Maintenance Variable Man-days column, note this number.

5) Find Labour Constant Man-days column, note this number.

6) Fill in the following equation:
(Metres x Maintenance Variable) + (Labour Constant Man-days)= Result. This number is the man-days of maintenance required on each structure.

7) Each man-day of government maintenance costs $192.00, therefore you multiply the man-days x $192.00 = cost per year of labour maintenance.

8) Material costs are obtained by multiplying the (square metres x material variable) + (Material Constant) = Total material Costs.

9) Add labours costs and material costs to obtain Total Maintenance Costs

TABLE 92
PREVAILING OPERATIONS AND MAINTENANCE COSTS, 1984

Building Type	Heat P50 L/M2	Electrical KWH/M2	Maintanence Variable *Mandays*	Labour Constant *Mandays*	Material *Variable*	Material *Constant*
Schools (4000m2 or more)						
Built before 1979	38.7	79.1	.0935	33.697	18.782	3920
Built 1979 or later	21.6	53.6	.0935	33.697	18.782	3920
Medium (1000m2 to 4000m2)						
Built before 1979	48.6	63.3	N/A	N/A	N/A	N/A
Built 1979 or later	32.7	67				
Small (0m2 to 1000m)						
Built before 1979	64.8	58.6	.0531	19.241	8.618	486.22
Built 1979 or later	46.5	62	.0531	19.241	8.618	486.22
Houses (avg.all types)						
Built before 1979	52.4	98.6	.0971	3.89	11.983	118.567
Built 1979 or later	41.1	87.2	.0971	3.89	11.983	118.568
Offices						
Built before 1979	74	77.1	N/A	N/A	N/A	N/A
Built 1979 or later	58	75.6	N/A	N/A	N/A	N/A
Garages and Workshops						
Built before 1979	114	64	.164	0	13.236	0
Built 1979 or later	108.3	60.8	.164	0	13.236	0
Heated warehouses	89	48	.164 .164	0	13.236	0
Multi-purpose Community Hall*						
Lightly used	26.2	53.6	.0531	18.567	13.236	316.85
No office or gym	26.2	53.6	.1648	19.241	8.618	486.22
Gym & School use	23	88.8				
Group Home*	47.1	105.9	.0971	3.89		
Freezers	nil	428.7	1 M.D.	0	0	651

N/A = Not Available
L/M2 = Litres/Metre(squared)
KWH/M2 = Kilowatts/Metre(squared)
* = for estimating purposes only

Sources 1) Dept. of Public Works, G.N.W.T.

For Example: How much does it cost to maintain a government house in Cambridge Bay?

1) House measures 10 metres x 12 metres = 120m2 metres/squared

2) This is a house, used for normal living.

3) Find the row for House.

4) The number for Maintenance Variable Man-days = .0971.

5) The number for Labour Constant Man-days = 3.89.

6) (120 x .0971) + (3.89)= 15.54 man-days.

7) 15.54 man-days x $192.00 = $2,984.00.

8) (120 x $11.983) + $118.17 = $1,556.00

9) Total Maintenance $2,984.00 + $1,556.00 = $4,540.00.

Note: This includes the annual share of long term maintenance eg. exterior, interior paint, roof repair etc.

Operations Costs

Fuel

1) Find the appropriate row again:

2) Note whether the structure is pre 1979 or later and locate the number of litres of P50 fuel used per square metre.

3) Multiply this figure by the area (from step 1, Maintenance). This is the number of liters of fuel used in a normal year.

4) Go to Table 49 and find the price per litre of fuel.

5) Multiply the total litres x price per litre = Total Price

Example for our house in Cambridge Bay.

1) The house is pre 1979.

2) The house uses 52.4 litres of fuel per square metre.

3) Filling in the equation - (120m2 x 52.4) = 6,288 litres of fuel used.

4) Price per litre from Table 49 is $.87.

5) (6,288 x $.87) = $5,470.56.

Total fuel cost = $3,395.52

Electrical

1) Find the appropriate row again:

2) Note whether the structure is pre 1979 or later and locate the number of Kilowatts used per square metre.

3) Multiply this figure by the area (from step 1, Maintenance) This is the number of Kilowatts used in a normal year.

4) Go to Table 48 and find the price per kilowatt of electricity.

5) Multiply the total Kilowatts x price per Kilowatts = Total Costs.

Example for Cambridge Bay.

1) The house is pre 1979.

2) This figure is 90.6 kilowats per metre.

3) Total Kilowatts used = (90.6 x 120m2) = 10,872 kilowatts per year.

4) Price of a kilowatt hour from Table 48 is $.3884

5) Total cost is ($.3884 x 10,872) = $4,222.68

Total Electrical Cost = $4,222.68.

Note: This figure may be slighly less because as consumption goes up price comes down.

Total Operating Costs = Fuel + Electrical = $3,395.52 + $4,222.68 = $7,618.20.

APPENDIX A: KITIKMEOT REGION
LOCAL BUSINESS INFRASTRUCTURE.

LEGEND:

NOO Northern Owned and Operated
SOO Southern Owned and Operated
CF Arctic Co-operatives Ltd.
NF Northern Franchise
NA Native Association
CC Crown Corporation
MO Member Organization

FT Full Time Employee
PT Part Time Employee
SE Seasonal Employee

Bathurst Inlet Tourism Business

Name	Employees	Owner	Type	Description
Bathurst Inlet Lodge	2 FT 1 PT 20 SE	G. Warner	NOO	Naturalist/historic tours, boats, store, lodge.

Cambridge Bay Construction Businesses

Name	Employees	Owner	Type	Description
Fred H. Ross & Associates Ltd.	15 FT	F. Ross	NOO	General contracting
Igloo Enterprises	8 FT 2 PT 6 SE	W. McDonald	NOO	General contracting
Inukshuk Enterprises Ltd.	8 SE	B. Peterson	NOO	General contracting
Nanook Construction	6 FT 4 SE	J. Evetalegak	NOO	General contracting
Ohohan General Contracting	2 PT	Henry Ohakannoak	NOO	General Contracting

Cambridge Bay - Other Businesses Not Previously Catologued

Name	Employees	Owner	Type	Description
Arctic Cablevision	1 PT	B. Zawadiuk	NOO	Cable TV service
Central Arctic Video Service	1 PT	Sid David	NOO	Video rentals
Ikaluktutiak Co-op	16 FT, 7 PT	Arctic Co-operatives Ltd.	CF	Arts and crafts sales and production
Rhoda Ohakannoak	1 PT	R. Ohokannoak	NOO	Cosmetic sales
Rudy Minilgak	1 FT	R. Minilgak	NOO	Barber shop

Cambridge Bay Realty and Financial Businesses

Name	Employees	Owner	Type	Description
Enokhok Dev. Corp. Ltd.	2 FT	Kitikmeot H.T.A.	NA	Property management

Cambridge Bay Secondary Service Businesses

Name	Employees	Owner	Type	Description
Central Arctic Yamaha (1982) Ltd.	4 PT	K. Ng	N00	Snowmachine sales and service
Felec Services Inc.		D. Robertson, Colorado	S00	Electronic service
Fred H. Ross & Associates Ltd.	15 FT	F. Ross	N00	Service station, petroleum products
Hudson's Bay Co. Ltd.,		H.B.C., Winnipeg	S00	Retail merchandising
Ikaluktukiak Co-op	16 FT, 7 PT	Arctic Co-operatives Ltd.	CF	Retail merchandising, bakery
Kadlun Central Translation	1 PT	M. Kadlun	N00	Translation services
Peterson Enterprises	3 FT, 1 PT	B. Peterson	N00	Janitorial services, snowmobile sales
Sam Anayoak Disposal Service	2 FT, 1 PT	S. Anayoak	N00	Municipal services

Cambridge Bay Tourism Businesses

Name	Employees	Owner	Type	Description
Cabana Restaurant	3 SE	Oswald Dyer	N00	Local restaurant
Chantrey Inlet	1 FT 7 SE	Ontario	S00	Lodge
High Arctic Lodge *	8 SE	British Columbia	S00	Lodge
Ikaluktutiak Co-op	16 FT, 7 PT	Arctic Co-operatives Ltd.	CF	Hotel, restaurant
Kitikmeot Arctic Tours	1 FT 6 SE	Sid Glossen	N00	Fishing, photography, outfittin naturalist

Cambridge Bay Transportation Businesses

Name	Employees	Owner	Type	Description
Adlair Aviation	3 FT	P. Laserich	N00	Air transport
Ikaluktuktiak Co-op	16 FT, 7 PT	Arctic Co-operatives Ltd.	CF	Local freight hauling and taxi
Pacific Western Airlines Ltd.	2 FT	P.W.A., Alberta	S00	Agent for sched. air service
Peterson Enterprises Ltd.	3 FT, 1 PT	B. Peterson	N00	Local freight hauling

NOTES: * These lodges and outfitters are non-resident operators.

Cambridge Bay Renewable Resources

Name	Employees	Owner	Type	Description
Ikaluktukiak Co-op	16 FT 7 PT	Arctic Co-operatives Ltd.	CF	Arctic Char Fisheries

Coppermine Construction Businesses

Name	Employees	Owner	Type	Description
Arctic Coast Enterprises	1 FT 4 PT	D. Harvey	N00	General contracting
Coppermine Construction Ltd.	1 FT 8 SE 3 PT	F. Taptuna	N00	General contraction
Roger's Welding & Repair Ltd.	3 FT	R. Hitkolok	N00	Welding

Coppermine - Other Businesses Not Previously Catologued

Name	Employees	Owner	Type	Description
Raymond Kaduck	1 PT	R. Kaduck	N00	Freelance ptoto journalist

Coppermine Secondary Service Businesses

Name	Employees	Owner	Type	Description
Coppermine Eskimo Co-op Assoc.	9 FT, 2 PT, 2SE	Arctic Co-operatives	CF	Retail merchandising
Hudson's Bay Co. Ltd.	11 FT, 1 PT	H.B.C.,Winnipeg	S00	Retail merchandising

Coppermine Tourism Businesses

Name	Employees	Owner	Type	Description
Coppermine Inn	2 FT	Karey Horne	N00	Hotel, restaurant
Edna Elias	2 PT	E. Elias	N00	Catering

Coppermine Transportation Businesses

Name	Employees	Owner	Type	Description
Haghagiak Taxi Service	3 PT	D. Havioyak	N00	Taxi service
Northwest Territorial Airways Ltd.	1 PT	B. Engles, Yellowknife	N00	Agent for sched. air service
Redson's	2 PT	F. Peterson	N00	Hauling freight

Gjoa Haven Construction Businesses

Name	Employees	Owner	Type	Description
Eastern Supply & Services Ltd.	2 FT	D. Sharpe	NOO	General contracting

Gjoa Haven - Other Businesses Not Previously Catologued

Name	Employees	Owner	Type	Description
Kekertak Co-op Assoc.	8 FT, 5 PT	Arctic Co-operatives Ltd.	CF	Retail arts and crafts

Gjoa Haven Secondary Service Businesses

Name	Employees	Owner	Type	Description
Alex Ruben	1 PT	A. Ruben	NOO	Snowmobile, repair
Hudson's Bay Co. Ltd.	7 FT 1 PT	H.B.C.,Winnipeg	SOO	Retail merchandising
Kekertak Co-op Assoc. Ltd.	8 FT, 5 PT	Arctic Co-operatives Ltd.	CF	Retail merchandising
King William Island Enterprises	3 PT	R. Kamookak	NOO	Snowmachine sales and service
Sporting Goods Store	1 PT	L. Quignantuq	NOO	Retail sporting supplies

Gjoa Haven Tourism Businesses

Name	Employees	Owner	Type	Description
Kekertak Co-op	8 FT, 5 PT	Arctic Co-operatives Ltd.	CF	Hotel, restaurant
Gjoa Haven H.T.A.	20 PT	Gjoa Haven H.T.A.	NA	Fishing, trapping

Gjoa Haven Transportation Businesses

Name	Employees	Owner	Type	Description
Eastern Supply & Services Ltd.	2 FT	D. Sharpe	NOO	Taxi service, local freight hauling
Kekertak Co-op Assoc. Ltd.	8 FT, 5 PT	Arctic Co-operatives Ltd.	CF	Taxi service, freight hauling
Northwest Territorial Airways	1 PT	B. Engles, Yellowknife	NOO	Agent for sched. air service

Holman Island Construction Businesses

Name	Employees	Owner	Type	Description
Elias Construction	1 Ft	A. Elias	NOO	General contracting
Joseph Kitekudlak	3 SE	J. Kitekudlak	NOO	General contracting

Holman Island - Other Businesses Not Previously Catologued

Name	Employees	Owner	Type	Description
Holman Eskimo Co-op	11 FT	Arctic Co-operatives Ltd.	CF	Production of art and crafts
Jack Kupeuna	1 PT	J. Kupeuna	NOO	Video rental

Holman Secondary Service Businesses

Name	Employees	Owner	Type	Description
Arctic Sports	3 SE	T. Gross	NOO	Small engine repair, welding
Holman Eskimo Co-op Ltd.	11 FT	Arctic Co-operatives Ltd.	CF	Retail merchandising
Hudson Bay Co. Ltd.	6 FT	H.B.C., Winnipeg	SOO	Retail merchandising

Holman Island Tourism Businesses

Name	Employees	Owner	Type	Description
Holman Eskimo Co-op	11 FT	Arctic Co-operatives Ltd.	CF	Hotel, restaurant
Holman Sports Hunt Ltd.	1 PT 10 SE	Holman Island H.T.A.	NA	Guiding, outfitting
Holman Kingalik Tours	1 PT 1 SE	Wallace Goose	NOO	Dogsled tours, fishing

Holman Island Transportation Businesses

Name	Employees	Owner	Type	Description
Allen's Trucking	1 FT	A. Joss	NOO	Local freight hauling
Holman Taxi Service	1 FT, 1 PT	P. Ekpakohak	NOO	Taxi service
J. Kaodloak	1 FT	J. Kaodloak	NOO	Local hauling
Northwest Territorial Air	1 PT	B. Engles, Yellowknife	NOO	Agent for sched. air service

Pelly Bay - Other Businesses Not Previously Catologued

Name	Employees	Owner	Type	Description
Kramanarnun Arts	2 FT, 4 SE	Arctic Co-operatives Ltd.	CF	Production of arts and crafts

Pelly Bay Secondary Service Businesses

Name	Employees	Owner	Type	Description
Cassien & Rosemary Immingark	2 PT	C. Immingark	NOO	Retail merchandising
Ittimangnak Sales & Parts & Sporting Goods	1 FT	G. Tiguareark	NOO	Snowmachine sales and service, sporting goods
Koomiut Co-op Assoc.	9 FT, 2 PT	Arctic Co-operatives Ltd.	CF	Retail merchandising

Pelly Bay Tourism Businesses

Name	Employees	Owner	Type	Description
Koomiut Co-op Assoc. Ltd.	9 FT, 2 PT	Arctic Co-operatives Ltd.	CF	Hotel, restaurant
Arctic Paradise Enterprise	1 PT	John Ningark	NOO	Fishing, photography

Pelly Bay Transportation Businesses

Name	Employees	Owner	Type	Description
Koomiut Co-op Assoc. Ltd.	9 FT, 2 PT	Arctic Co-operatives Ltd.	CF	Taxi service and freight hauling
Northwest Territorial Air	1 PT	B. Engles, Yellowknife	NOO	Agent for sched. air service

Spence Bay-Other Businesses Not Previously Cataloqued

Name	Employees	Owner	Type	Description
Taloyoak Crafts Association	8 FT	Community owned	NA	Production of arts and crafts

Spence Bay Secondary Service Businesses

Name	Employees	Owner	Type	Description
Hudson's Bay Co. Ltd.	7 FT 1 PT	H.B.C., Winnipeg	S00	Retail merchandising
Paleajook Co-op Assoc.	8 FT, 4 PT	Arctic Co-operatives Ltd.	CF	Retail merchandising

Spence Bay Tourism Businesses

Name	Employees	Owner	Type	Description
Paleajook Co-op Ltd.	8 FT, 4 PT	Arctic Co-operatives Lttd.	CF	Hotel, meal services

Spence Bay Transportation Businesses

Name	Employees	Owner	Type	Description
Lyall's Taxi & Cartage	1 FT	P. Lyall	N00	Taxi and local freight hauling
Northwest Territorial Air	1 PT	B. Engles, Yellowknife	N00	Agent for sched. air service

APPENDIX B: SELECTED BIBLIOGRAPHY & REFERENCES

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